

ANNUAL REPORT-1982

Council of Economic Advisors



Commonwealth of Kentucky
John Y. Brown Jr., Governor

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Council of Economic Advisors

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**Kentucky Council
of Economic Advisors
Lexington, Kentucky**

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THE KENTUCKY COUNCIL OF ECONOMIC ADVISORS

The Kentucky Council of Economic Advisors was created by Executive Order in December 1970, and was confirmed by the legislature in Chapter 147B, Kentucky Revised Statutes in the 1972 regular session. Its functions are as follows:

1. To collect, compile, and interpret economic data concerning the economy of the Commonwealth (including employment, unemployment, wages, personal income, profits and other socioeconomic information).
2. To make economic projections and recommendations.
3. To report to the Governor at the beginning of each fiscal year and calendar year on the state of the economy of the Commonwealth.
4. To undertake such other related tasks as may be requested by the Governor.

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The production of this report is one of the continuing research activities of the Kentucky Council of Economic Advisors (KCEA). The Council and its staff also publish the quarterly *Kentucky Economy: Review & Perspective* and various occasional reports. The occasional reports usually appear in one of two continuing series, the *Policy Papers Series* or *Studies in Applied Economics*. Also included in the Council's research program are the development and maintenance of the Kentucky Economic Information System (KEIS). The KEIS is a computerized data base system primarily containing several thousand economic data series pertaining to Kentucky and its administrative and geographical subdivisions. The Council staff has made studies of quarterly changes in the Kentucky economy, using an econometric model, and also has prepared long-term forecasts.

The KCEA publishes each of its reports as a contribution to the competent professional treatment of the subject. Its studies are undertaken in an objective fashion and, accordingly, are worthy of public consideration. The interpretations and conclusions in such publications are those of the authors and do not necessarily reflect the views of the Council, its members, or any other organization or person.

The staff of the KCEA has been particularly pleased during the year with the support and interest provided by the Council members: Charles Hultman, Chairman, John Clarke, W. Bruce Lunsford, Clyde Reeves, John Swift, and Willis Weatherford.

The entire KCEA staff participated in preparing this report. Presently on the staff are: Margaret O. Adams, Dee-Fu Chen, Yeu-Tien Chou, Mark Lunn, Frances E. Ross, Roy A. Sigafus, Dorisa A. Slaughter, and Elsie M. Youmans. Sincere thanks are extended to all for their efforts and cooperation during the year.

Don M. Soule
Executive Director (Acting)
Kentucky Council of Economic Advisors

PREFACE

A major function of the Kentucky Council of Economic Advisors is to analyze and interpret economic data pertaining to the Commonwealth. The function becomes a more important but less pleasant responsibility when the data reflect a dismal past performance for the U.S. economy and, for the coming year, a gloomy forecast of continued low growth rate and high unemployment. When preparation for this report commenced in mid-1982, the consensus among national forecasters was that the recession's lowest point had already been or would shortly be reached. The prospect for moderate economic recovery for the remainder of 1982 seemed promising. But preliminary figures now show that the national economy suffered high unemployment and a declining real growth rate for the third and fourth quarters of 1982.

Economic recovery is not likely to occur in Kentucky until expansion begins in the national economy. Of particular importance to Kentucky is the need for improvement in the automobile producing and residential construction industries. These not only are major sectors themselves but also affect the well-being of several related industries. Year-end indicators provide some basis for expecting slow but continuing growth through 1983 and 1984.

This *Annual Report* (our eleventh) begins with a description and analysis of the U.S. and Kentucky economies for the years 1981, 1982, and 1983. Accordingly, it examines actual data as well as projections for 1983. Chapter III contains a somewhat more detailed analysis of the Kentucky economy for the period 1970-80, being essentially an effort to identify the factors that contributed to the relative decline in Kentucky's per capita income in the late 1970s. Three sectors particularly important in Kentucky's growth and development are coal, agriculture, and residential construction. In the remaining three chapters, William Bowker, Professor Larry Jones, and Professor L. R. McGee consider each of these sectors individually in terms of short-term prospects for growth and economic recovery.

The Council will continue to monitor and analyze developments in the state and national economies. Despite anticipation of a slow rate of recovery, the long-term prospects for both the state and the nation are optimistic. It is believed that the underlying economy is relatively strong and retains the flexibility to adapt to structural shifts in the world economy, new technological developments in industry and commerce, and changing demographic structure of the U.S. population.

Charles W. Hultman
Chairman
Kentucky Council of Economic Advisors

I. THE U.S. ECONOMY: AN OVERVIEW

Charles W. Hultman

The performance of the U.S. economy for the past year and a half has been disappointing in several respects—high unemployment, limited growth, high bankruptcy rates, and lagging productivity. The sharp reduction in the inflation rate is one favorable indication of improvement and there is also a general consensus that the U.S. economy is basically strong with unquestioned potential for long-term gains.

The purpose of the first part of this chapter is to review the behavior of the U.S. economy for the past eighteen months—a period that corresponds roughly with initial efforts to implement “Reaganomics.” The second part of the study contains projections of the U.S. economy—what can be expected for the period ending December 1983. It is not the purpose of the chapter to assess the programs of the new administration. Nevertheless, some of the policies that have been instituted can be expected to affect the behavior and structure of the economic system. Generally, an effort is made throughout the chapter to focus on developments that had a relatively direct impact on the Kentucky economy.

Background Conditions

In part, of course, developments in the U.S. economy since the beginning of 1981 relate to conditions of preceding years. As a private enterprise and essentially *laissez faire* system, the U.S. has historically been subject to cyclical movements in production, income, and employment. However, its long-term growth experience, level of per capita income, and degree of economic freedom have been among the most favorable in the world.

During the 1960s and 1970s, a number of specific conditions came to be of concern to Americans. Severe inflation, which received early impetus from financing methods in the Vietnam War was subsequently accelerated by the action of the OPEC countries and by growing federal government deficits. Lagging industrial productivity was also a relatively new concern. During 1973 and 1974, productivity as measured by output per hour of all workers in the private business sector actually declined slightly. Productivity improved slightly during the period 1975-77; in 1978, 1979, and 1980 it remained almost constant but then declined again in mid-1981.

OPEC action contributed to serious inflationary pressures and also focused attention on the scarcity of resources and the need for conservation of petroleum, other energy and of other types of basic and raw materials. Pollution of the environment also came to be more widely recognized as an annoyance or irritant, and also a potentially serious threat to the health and well-being of society.

Finally, there was a growing perception that many of the social programs initiated in the late 1930s were far more costly to society than had ever been presumed would be the case. Also, some of the past regulatory action created by Congress came to be seen as going well beyond the need for protection of consumers and other specified groups, and actually as exerting a restrictive influence on the productive efforts of society.

Although most U.S. productive activity is undertaken in the private sector, this effort is affected by government policies and complemented by government action. Perhaps the most important hallmark of the Reagan administration relates to the role that should be assigned to the federal government and, second, to the ordering of priorities relating to national objectives. These considerations, of course, basically involve value judgements and fall into a normative category. Because they reflect efficiency as well as fairness, they affect very much the nature and working of the economy but yet are not to be determined solely by economists.

A basic underlying assumption of the Reagan administration is the need for a reduction in the federal government's role in economic affairs. The proposed implementing action includes lessening of a wide range of regulatory activities particularly as they affect business, a change which for some sectors had already been started by the Carter administration (the airlines in 1978 and trucking in 1980). It includes tax concessions to business to stimulate investment in the private sector. A transfer of many responsibilities from Washington to state and local governments—the New Federalism—is also a part of the philosophy, although efforts in this direction are not likely to be made until 1983. Finally, it includes an effort to limit the growth of, and in some instances to eliminate, social programs that have developed since the 1930s.

In terms of priorities, the Reagan administration has emphasized increased defense spending, price stability and, to an extent, a balanced budget, as major goals. A reduction of unemployment and a lessening of poverty are intermediate term goals that are assumed to occur as the private sector responds to improved opportunities and investment conditions.

The new administration assumed responsibilities in early 1981. Inflation, as reflected by the Consumer Price Index, had increased since 1980 at an annual rate of about 10 percent; the January 1981 U.S. unemployment rate was 7.4 percent; the index of industrial production for January 1981 was 151.4 (1967 = 100) and home mortgage rates stood at 14 to 15 percent.

The Past Eighteen Months

One of the most important features of the U.S. economy during the past few years has been its unusual cyclical behavior. A peak in economic activity was identified by the National Bureau of Economic Research as occurring in January 1980, a trough or low point in activity in July 1980, and a new peak in July 1981. The July 1981 peak or upper turning point was related primarily to industrial production (up to almost 154 percent of the 1967 level) and unemployment (down to 7.2 percent). Several other indicators peaked either in the preceding or the following months. The July 1981 peak marks the end of one of the shortest expansion periods on record; it also marks the onset of a new recession which from all appearances occurred before full recovery had been reached from the previous recession. Recovery periods usually end when capacity constraints reduce the possibility of continued expansion, but the July 1981 upper turning point occurred well before full capacity had been reached.

The U.S. Economy—the Major Aggregates

It is first useful to describe in the broadest possible terms national developments in output, employment, and prices. As indicated in Table 1, real gross national product (the value of the nation's output of final goods and services in constant prices) behaved somewhat erratically on a quarter-to-quarter basis over the period starting the first quarter of 1981 and continuing through the second quarter of 1982. Real output rose at the unusually high rate of 7.9 percent during the first quarter of 1981; it declined 5.3 and 5.1 percent during the fourth quarter of 1981 and the first quarter of 1982, respectively. The depth of the recession is most evident in these two quarterly GNP figures. The index of industrial production (1967 = 100) dropped from 153.9 in July 1981 to 140.7 in January 1982 and then to 138.2 in June of the same year. In terms of future developments, the 2.1 percent rise in real GNP during the second quarter of 1982 is significant, given the sharp decreases of the two preceding quarters.

The components of GNP provide an indication of the causal factors at work. Each of these major components—consumption expenditures, gross private domestic investment, government spending, and net exports—displays unique characteristics in terms of impact on overall expenditures. (Additional detail on GNP components is contained in Table 8.)

Consumption expenditures. Consumer expenditures traditionally represent almost two-thirds of GNP and tend to be relatively stable, although increasing, over time. In real terms, these expenditures rose significantly during the first quarter of 1981, but declined by almost 3 percent during both the second and fourth quarters of 1981 (Table 1). This occurred despite the

fact that real disposable personal income increased slightly over most of the 18-month period. For the most part, the decline occurred in the purchase of durable goods, especially automobiles; nondurable consumption remained relatively constant in real terms.

Gross private domestic investment. Gross private domestic investment (GPDI) is the smallest component of GNP but tends to be the most volatile. As indicated in Table 1, the growth rate of GPDI declined sharply throughout 1981; in late 1981 and early 1982 it declined significantly even in absolute terms. The decline in private investment during these two quarters is closely related to changes in aggregate real output.

From a "supply-side" perspective the major area of disappointment over the past 18 months was in GPDI. It was assumed that private investment would expand because of tax concessions and reduced government regulation. For example, the tax incentives passed by Congress in mid-1981 for the business sector were made retroactive to January of that year to provide an early stimulus to investment activity.

The declining rate of growth of investment through 1981 and part of 1982 was related particularly to an absolute decline in the production of nonfarm residential structures. The level of business inventories also fluctuated widely, but the remaining components of gross private investment continued at a fairly constant level. The behavior of private investment is not surprising, however, in view of declining aggregate corporate profits through 1981 and the first part of 1982.

Net exports. Because the net export component of GNP is relatively small, changes in its magnitude are not particularly meaningful when expressed in relative terms. The absolute values provided in Table 1 indicate that net exports (the difference between the value of exports and imports of goods and services) remained positive but gradually declined during much of this period. Much of the change was related to the fall in exports, especially of merchandise, as overseas markets weakened over this period of time.

The U.S. merchandise trade balance has been negative since the beginning of 1976. During most of these years, service exports have been adequate to provide a net total favorable balance of trade. The major service type of transaction—income on U.S. investment abroad—continued to be a major contribution to the overall favorable trade position for the U.S. during 1981 and 1982.

An important factor affecting the U.S. trade position since mid-1980 has been the strengthening of the U.S. dollar in the foreign exchange market. The rise in the exchange value of the U.S. dollar relative to most foreign currencies has tended to reduce the volume of exports and to encourage imports. The foreign exchange market value of the dollar is affected by the many forces that influence the supply and demand for exports and imports. However, the relatively high interest rates in the U.S. have contributed to a

capital inflow to the U.S. and accordingly a strong demand for dollars.

Government expenditures. Government expenditures represent the component of GNP which within limits is most easy to control, although in practice not as readily as was thought to be the case. Aggregate government expenditures for goods and services are relatively stable at approximately 20 percent of GNP.

Despite efforts to bring expenditures in line with receipts, the federal deficit has grown substantially from an annual rate of about \$40 billion in early 1981 to more than \$100 billion in 1982. The deficits, in turn, have forced the federal government to become a more important participant in credit markets as a major borrower and have a greater influence on interest rate levels. It has also provided an impetus for a constitutional amendment that would disallow federal deficits.

Interest Rates and Monetary Policy

Over the past year and a half, attention has focused on high interest rates which from all appearances have had a serious adverse impact on two major sectors of the economy—contract construction and automobile production—that are heavily dependent on credit and affected by the cost of funds. Table 2 indicates several rates for 1979, 1980, 1981 and the first months of 1982, all of which have been relatively high over the entire period. The largest change during the period was in mortgage rates which increased about 2 percentage points during both 1980 and 1981.

The high interest rates that characterize U.S. money and capital markets are related to several factors in addition to government borrowing. The expected inflation rate is an important consideration; for example, the real rate of return to a lender is reduced if inflation occurs during the life of a loan. Frequently, reference is made to the real rate of interest which is essentially the nominal rate of interest less some allowance for inflation; the real rate has been defined as the market interest rate when the expected rate of inflation is zero.¹

Ultimately, the rate of interest depends upon the demand for and supply of credit. For this reason the presence of the federal government in credit markets is of significance. Total federal and federally assisted borrowing has increased as a share of total borrowing in credit markets, but it is difficult to determine the extent to which this "crowding out" has affected private access to borrowed funds. Clearly, federal borrowing has increased as a share of total borrowing; the proportion expanded from about 17 percent in the 1960s to 30 percent in the 1970s and could exceed 50 percent in both 1982 and 1983.²

Frequently, questions are raised regarding the Federal Reserve's role in interest rate determination. Since October of 1979, Federal Reserve policy

has been to control the supply of money through the supply of bank reserves. For example, the Federal Reserve adopted a target range of 3.5 to 6.0 percent for 1981 and 2.5 to 5.5 percent for 1982 for the growth of M1-B (adjusted). A target range of 6 to 9 percent growth was established for M2 for both 1981 and 1982. The target ranges for both M1-B and M2 in effect for 1982 are expected to be maintained through 1983.³

Thus the immediate concern of the Federal Reserve has been that of the supply of money rather than interest rates. Because of the targeting of the money supply, it appears that the Federal Reserve's influence on interest rates is lessened. However, Federal Reserve influence on credit and interest rates may also be causally related to expectations. That is, expectations regarding inflation which is partially based on Federal Reserve action may affect investor actions and interest rates.⁴

Inflation

One area of major concern of the Federal Reserve in recent years is that of inflation which for an extended period had ranged in the two digit level. For example, the Consumer Price Index (CPI) rose about 9.0 percent in 1980 and about 10.3 percent in 1981, but during the first half of 1982 rose at an annual rate of about 6.0 percent.

Although the overall CPI increased about 9 percent over the entire 18-month period, the increase varied rather significantly, depending upon the nature of the product or service (Table 3). For example, the cost of medical care continued to rise at a rate higher than that of other CPI components. Housing prices, a major item in the CPI continued to rise at an unprecedented rate. The smallest increases during the same period occurred in apparel and upkeep, food and beverages and in transportation.

Unemployment

Although extended recession adversely affects many segments of the economy, the greatest impact and highest social cost relates to the unemployment of the labor force. The cost to society might be related, in part, to the net production of goods and services lost or foregone when workers are not fully utilized. As indicated in Table 4, the U.S. total unemployment rate of 7.6 percent during 1981 was exceeded by at least 1 percentage point during the first months of 1982. The figures for May through August of 1982 of 9.5, 9.5, 9.8, and 9.8 percent, respectively, represent the highest unemployment rate since the 9.9 percent annual rate for 1941.

In addition, the unemployment rates do not include statistics on "discouraged" workers which are collected only once every three months. This group of persons, who are not counted in unemployment figures because they have

given up seeking work, were about 1.3, 1.5, and 1.6 million in the first, second, and third quarters of 1982, respectively. During 1981, the number of persons in this category averaged about 1.1 million.⁵

Also included in Table 4 is information on the covered unemployment rate—the rate of unemployment of workers who are included in unemployment insurance programs. As suggested by these figures, about half of all unemployed workers are able to count on at least a minimum level of income through the unemployment insurance system.

There are some indications that unemployment may be more of a persistent or structural consideration than has been the case in the past. For example, even at the most recent peak in business activity in July 1981, the unemployment rate stood at 7.2 percent. In addition, a reduction in the unemployment rate has not been a top priority item of the Reagan administration.

Unemployment has affected some groups to a much greater extent than others. For example, the rate among teenagers (both sexes, ages 16-19) has been about twice as high as the average for all ages. This group naturally has the most limited experience and seniority and, accordingly, is the first to be affected by layoffs. It has also been higher among blacks than the overall average. From an occupational perspective the unemployment rate has been at least twice as high for blue-collar workers as for white-collar workers. From an industrial perspective, the construction industry has been hit hardest, with a rate almost double the overall average.

Unemployment rates have also varied among regions of the country. The highest rates have characterized a group of east central states—from Michigan, Ohio and Pennsylvania down through Mississippi and Alabama. The lowest rates apply to several of the more agricultural states of the midwest and west from North Dakota and Minnesota down through Texas.

The Next Eighteen Months

Although the trough or lower turning point of the recession will not be identified for some time, there is a consensus among the major forecasting services that the economy will remain relatively flat through much of 1983. The average post-World War II recession has lasted 10 months; the month of May 1982 marks the tenth month of the current decline which, accordingly, is likely to be longer than average. The subsequent recovery is also expected to be gradual, however, with the average unemployment rate declining only slightly through much of 1983.

Projected Growth—The Major Aggregates

The set of projections provided by Wharton Econometric Forecasting Associates, Inc. for the major national aggregates (dated October 20, 1982) indicates growth rates of real GNP of -1.5 percent for 1982 and 3.2 percent for 1983. On a quarterly basis, as indicated in Table 5, real GNP would rise by 0.8 and 2.2 percent in the third and fourth quarters of 1982. This would partially offset the negative growth that describes much of the first half of 1982. GNP growth would continue through 1983 and 1984 although at moderate rates. The growth in GNP projected by Wharton would be the result of expansion on the part of the three major sectors of the economy—consumers, investors and government. (Additional detail on each sector is provided in Table 9.)

Consumption expenditures. On a quarter-to-quarter basis, consumer spending would rise within a range of from about 1.4 percent to about 5.2 percent (Table 5). The 10 percent cut in personal income taxes July 1, 1982, the second of three scheduled reductions under the Economy Recovery Tax Act of 1981, will provide consumers with an estimated additional income of about \$32 billion at an annual rate. Further, an estimated \$11 billion income increase will occur from a 7.4 percent cost of living increase in Social Security payments. Consumer debt is also at a lower level than what might be expected with the relatively high unemployment rate. Consumer installment credit as a portion of personal income is lower than the 1978-80 ratio and more in line with that of previous years. These factors, along with a continuation of various types of transfer payments will result in projected real disposable income rising by about 1.5 percent in 1982 and 3.6 percent in 1983, despite an overall decline in real GNP in 1982.

Although expenditures would be divided among the different types of consumer goods, purchases of nondurable goods and services would continue at a more stable rate than the purchase of durable goods. Although nondurable consumption tends to be stable over the cycle, it also has tended to decline from a secular perspective relative to services and durables. The purchase of durable consumer goods would increase significantly beginning in early 1983. Automobile sales are projected to increase slightly in 1982 as 1981, but to increase about 23 percent in 1983.

Gross private domestic investment. Investment would also rise for the next several quarters although on a somewhat erratic basis (Table 5). This component dropped so sharply in early 1982 in real terms that even with expansion in late 1982, the total for the year reflects a projected 10.9 percent decline over 1981. However, for 1983, an 8.0 percent increase in GPDI is anticipated.

GPDI is frequently divided into several categories: nonresidential fixed investment (equipment and structures), residential fixed investment, and

changes in business inventories. The highest growth rates are projected for residential fixed investment and business inventories. GPDI depends to a great extent on developments relating to the interest rate. Private investment also depends upon profit expectations; accordingly its behavior depends to a great extent upon the business community's assessment of future developments.

Government expenditures. Real government expenditures are not projected to change significantly over the period July 1982 through December 1983. The federal budget for fiscal year 1983 continues the new direction initiated by the Reagan administration in early 1981. These changes include a substantial increase in national defense spending, and a decline in a wide range of spending activities except for entitlement programs and interest on the national debt.

Because of depressed conditions in the economy, tax receipts of various types will fall far short of that needed to cover expenditures. The Congressional First Concurrent Budget Resolution for 1983 presumes a budget deficit of about \$104 billion for fiscal year 1983 and about \$84 billion for 1984. Wharton's projected federal deficit for *calendar* year 1982 is about \$141 billion and for 1983, about \$154 billion—both figures higher than suggested by the Budget Resolution.⁶ A relatively large federal deficit can be expected in 1983 even if economic recovery commences in mid- to late 1982. It has been suggested, for example, that in five of six post-World War II recessions, the deficit as a percentage of GNP peaked after the end of the recession.⁷

Net exports. The projected net export situation is less optimistic than that of the last 18 months. Net exports (in real and absolute terms) are expected to remain relatively constant over the next 18 months; during most of this period, merchandise exports are expected to decline but service exports would increase.

The U.S. export position could be improved with increased price stability domestically or with greater competitiveness on the part of American firms. A decline in the interest rate would also reduce the foreign demand for U.S. dollars for investment purposes, reduce the upward pressure on the dollar, and thus contribute to a larger volume of U.S. exports.

Projected Interest Rates

As indicated previously, high interest rates have not only contributed to an upward pressure on the exchange value of the dollar, but are considered to have been a major factor contributing to depressed conditions in the construction and automobile industries. It has also been concluded that a substantial and comprehensive economic recovery will not occur until interest rates are substantially below the 1980-81 levels.

Interest rates are affected by a variety of factors and are difficult to predict. In addition, the various rates appear to have become even more volatile since the Federal Reserve's October 1979 shift to controlling the major monetary aggregates.

Money growth targets set by the Federal Reserve have been gradually reduced during the three years they have been in effect. The 1983 M1 and M2 targets are to remain at the 1982 target growth ranges of 2.5 to 5.5 percent and 6.0 to 9.0 percent, respectively.⁸

The various interest rates projected by Wharton Associates are slightly more promising (Table 6). The Federal Reserve discount rate, for example, is projected to decline to an annual average of 8.5 percent by 1983, which is significantly below that existing for the past few years. Mortgage rates on new homes for 1983 are about 2 percentage points below those of 1982 but are substantially higher than those of 1979 and 1980. The rates for three-month Treasury Bills and six-month commercial paper for 1982 and 1983 are below those of 1981. Insofar as these select rates are representative of interest rates generally, it is apparent that there is likely to be some decline in the near future.

Inflation

The evidence that serious inflation may have been brought under control will prove beneficial for expansion purposes. This is particularly true if the overall effect is to raise the confidence of the business community in the long term growth potential of the U.S. economy. Optimism regarding inflation is based on the assumption of a continuation of a somewhat restrictive monetary policy and the likelihood of excess capacity in the economy for some time to come. Continuing difficulties within OPEC suggest the likely availability of additional petroleum at somewhat more favorable prices. Finally, there is an increase in the frequency of union-management negotiations in which labor grants concessions to assure the continued operation of a company. In addition, there is evidence that wage gains were moderate in 1981 and could continue in 1982. In fact, when adjusted for inflation, real wages may have declined in some sectors.⁹

A related area of disappointment in recent years is in productivity as reflected in the output per hour, on the average for all persons in the private sector. According to this measure, which increased annually from 1.5 to 2.5 percent during much of the post-World War II period, productivity remained almost unchanged during the period 1978 through early 1982. The ability to achieve productivity gains throughout the economy could be a significant factor alleviating inflationary pressures.

On balance, however, optimism prevails regarding the control over price levels. Wharton Associates (in the quarterly forecast dated October 20, 1982)

projects inflation as reflected in the CPI to slow to 6.2 percent in 1982 and 5.5 percent in 1983.

Unemployment

Although an upturn in economic activity is expected to occur in mid- or late 1982, an early improvement in the unemployment rate is not expected. Wharton, for example, projects the unemployment rate to rise to 10.2 percent for the fourth quarter. For 1983, the average for the entire year is expected to remain at about 9.7 percent. This, incidentally, is still above the 8.5 percent unemployment rate that characterized the recession of 1975.

The relatively slow projected economic recovery is not limited to the United States. The Organization for Economic Cooperation and Development (OECD) anticipates that the overall growth rate for the 24-member industrial countries will be modest and unusually slow over the next 18 months. Overall growth in real GNP for 1982 is projected at 0.5 percent; for 1983, 2.5 percent. Generally, growth rates for 1983 for the major industrial OECD countries would range from 4 percent for Japan to 1 percent for Canada, with the U.S. growth rate projected at 2 percent. The unemployment rate for the entire OECD area is expected to range from 8.5 to 9.0 percent for 1982 and 1983.¹⁰

Comparison of Projections

In order to determine the degree of consensus among forecasters, the projections of four economic variables are compared for the third and fourth quarters of 1982, and the average for all of 1982 and of 1983 in Table 7. These comparisons, however, should be used only in a general way; the fact that the projections were not all undertaken at the same time partially affects the degree of optimism or pessimism shown on the part of each of the five forecasters. For example, administration (Office of Management and Budget) figures were released in early August of 1982; Wharton figures, late November of 1982.

Generally, there is agreement that although the economy will pick up during the latter part of 1982, real GNP will be less in 1982 than in 1981. Real GNP is expected to grow by more than 3 percent in 1983. The unemployment rate is projected to remain relatively high for 1983.

It is apparent from Table 7 that there is substantial agreement of expectations regarding economic growth, inflation, and the unemployment rate. Generally, administration figures are slightly more optimistic than the others. Expectations regarding the size of the deficit differ significantly, however. The administration estimates a deficit of \$109 billion for fiscal 1982, and a deficit of \$115 billion for 1983. The other two deficit estimates for 1983 are

somewhat higher. In addition, administration projections are perhaps more conservative than those of early and mid-1981; it is no longer expected that there will be a "roaring" economic recovery and a balanced federal budget in the near future. Instead, recovery will be gradual and may well involve unemployment rates almost as high as in 1982.

Footnotes

¹Michael W. Keran, "Interest Rates: How Much is Real," *Weekly Letter*, Federal Reserve Bank of San Francisco, May 14, 1982, pp. 1-3.

²Rose McElhattan, "Deficit Financing Pressures," *Weekly Letter*, Federal Reserve Bank of San Francisco, March 5, 1982, pp. 1-3.

³For a discussion of monetary targets, see "Record of Policy Actions of the Federal Open Market Committee," *Federal Reserve Bulletin*, June 1982, pp. 364-370. Simply described, the several versions of the money aggregates begin with M (demand deposits plus currency plus coins) and add several types of savings accounts. M1-B is M plus travelers' checks of nonbank issuers plus negotiable order of withdrawal (NOW) accounts. M2 is M1-B plus savings and small-denomination time deposits at all depository institutions. See footnote to Table A3 in *Federal Reserve Bulletin*, June 1982.

⁴See, for example, Brian Motley and Herbert Munyon, "Interest Rates and the Fed," *Weekly Letter*, Federal Reserve Bank of San Francisco, February 20, 1981, pp. 1-3.

⁵Discouraged workers are defined as those who have neither worked nor looked for work during the 4-week period prior to enumeration. For a discussion, see Robert Bednarzik, Marilyn Hewson, and Michael Uguhart, "The Employment Situation in 1981: New Recession Takes Its Toll," *Monthly Labor Review*, March 1982, pp. 3-14.

⁶Office of Management and Budget, *Budget of the United States Government* (Fiscal Year 1983), U.S.G.P.O., 1982.

⁷James R. Capra, "Current Economic Developments," *Quarterly Review*, Federal Reserve Bank of New York, Spring 1982, pp. 30-33.

⁸Carl E. Walsh, "The Federal Reserve's Operating Procedures and Interest Rate Fluctuations," *Economic Review*, Federal Reserve Bank of Kansas City, May 1982, pp. 8-18.

⁹Arthur Sackley, "Wage Increases Moderate in 1981," *Monthly Labor Review*, May 1982, pp. 3-8.

¹⁰Organization for Economic Cooperation and Development, *OECD Economic Outlook*, Paris, July 1982.

TABLE 1
CHANGE IN REAL GNP AND ITS COMPONENTS
1981-I THROUGH 1982-II

	Percent Change Real GNP	<u>Percent Change in Components of GNP</u>			Net Exports (billions)
		Consumer Expenditures	Gross Private Domestic Investment	Government Expenditures	
1981-I	7.9%	4.4%	25.0%	5.2%	\$48.2
1981-II	-1.5	-2.7	14.9	-4.1	44.2
1981-III	2.2	2.9	6.9	3.6	39.2
1981-IV	-5.3	-3.3	-22.6	7.0	36.5
1982-I	-5.1	2.5	-36.5	-2.9	36.9
1982-II	2.1	2.5	15.0	-5.3	35.7

SOURCE: U.S. Department of Commerce, *Survey of Current Business*, September 1982.

TABLE 2
SELECTED INTEREST RATES, 1979-82

	1979	1980	1981	Jan.	Feb.	Mar.	1982			
							Apr.	May	Jun.	Jul.
Discount Rate (N.Y.F.R. Bank)										
End of Year or Month	12.00%	12.87%	12.10%	12.00%	12.00%	12.00%	12.00%	12.00%	12.00%	11.81%
Home Mortgage Rate (U.S. Average, New Homes)	10.48	12.25	14.17	14.67	14.44	14.93	15.13	15.11	14.74	15.01
Yield on U.S. Government Securities,										
3-Month Bills	10.04	11.51	14.08	12.41	13.78	12.49	12.82	12.15	12.11	11.91
Commercial Paper, 6-Month	10.91	12.29	14.76	13.35	14.27	13.47	13.64	13.02	13.79	13.00
U.S. Treasury Bill										
Secondary Market, 1-Year	9.75	10.89	13.14	12.77	13.11	12.47	12.50	11.98	12.57	11.90

SOURCE: Board of Governors of the Federal Reserve System. Federal Reserve Bulletin (various issues); and U.S. Department of Commerce, *Survey of Current Business* (various issues). Also available through the Kentucky Economic Information System (KEIS).

TABLE 3
CHANGES IN THE CPI MAJOR COMPONENTS,
JULY 1982

Component	CPI Index		Percent Change
	January 1981	July 1982	
Food and Beverages	261.4	280.0	7.4%
Housing	279.1	319.2	14.4
Apparel and Upkeep	181.1	189.7	4.7
Transportation	264.7	296.1	11.9
Medical Care	279.5	330.0	18.1
Entertainment	214.4	236.6	10.4
Other Goods and Services	262.2	257.2	13.8

SOURCE: U.S. Department of Labor, Bureau of Labor Statistics, Consumer Price Index, All Urban Consumers. Retrieved from the Kentucky Economic Information System.

TABLE 4
EMPLOYMENT AND UNEMPLOYMENT, UNITED STATES, 1980-82
(In Thousands of Workers)

	Labor Force	Employed	Unemployed	Employment Rates	
				Total	Insured
1980	106,940	99,303	7,637	7.1%	3.9%
1981	108,670	100,397	8,273	7.6	3.5
1982*					
January	108,879	99,581	9,298	8.5	4.0
February	109,165	99,590	9,575	8.8	4.0
March	109,346	99,492	9,854	9.0	4.3
April	109,648	99,340	10,307	9.4	4.6
May	110,666	100,117	10,549	9.5	4.6
June	110,191	99,764	10,427	9.5	4.7
July	110,522	99,732	10,790	9.8	NA
August	110,644	99,839	10,805	9.8	NA

*1982 amounts are seasonally adjusted.

SOURCE: U.S. Department of Labor, Bureau of Labor Statistics, from CITIBASE through the Kentucky Economic Information System.

TABLE 5
PROJECTED CHANGE IN REAL GNP AND ITS COMPONENTS,
1982-III TO 1983-IV

	<u>Percent Change in Components of GNP</u>				
	Percent Change Real GNP	Consumer Expenditures	Gross Private Domestic Investment	Government Expenditures	Net Exports
1982-III	0.8%	1.4%	-0.4%	6.8%	\$30.7 B
IV	2.2	2.8	6.6	-2.8	31.0
1983-I	3.0	3.2	5.2	1.2	31.0
II	4.5	4.6	9.7	0.0	31.5
III	5.5	5.1	16.7	2.0	30.2
IV	5.1	5.2	11.6	1.7	29.2

Note: Figures in first four columns are percent changes at annual rates from previous quarter. Figures in column 5 are in billions of constant 1979 dollars.

SOURCE: Wharton Econometric Forecasting Associates, Inc., *Quarterly Model Outlook Data Supplement*, October 20, 1982.

TABLE 6
PROJECTED INTEREST RATES, 1982 AND 1983*

	1982	1983
Discount Rates, Federal Reserve	11.08%	8.50%
Mortgage Rates, New Homes	15.23	13.03
Three-Month Treasury Bills	10.61	7.83
Six-Month Commercial Paper	12.05	8.46

*Annual averages.

SOURCE: Wharton Econometric Associates, Inc., *Quarterly Model Outlook Data Supplement*, October 20, 1982, p. 26.

TABLE 7
COMPARISON OF PROJECTED KEY ECONOMIC VARIABLES

	1982-III	1982-IV	1982	1983
Growth in Real GNP (%)				
Wharton	0.8%	2.2%	-1.5%	3.2%
Morgan Guaranty	0.8	0.5		
Administration (OMB)			-0.7	4.4
Congressional Budget Office			-1.3	3.6
NBER			-1.1	3.0
Change in CPI (%)				
Wharton	7.8	3.2	6.2	5.5
Morgan Guaranty	7.6	1.7		
Administration (OMB)			5.9	6.7
Congressional Budget Office			6.3	6.2
NBER	6.3	6.1	5.7	6.1
Unemployment Rate (%)				
Wharton	9.9	10.2	9.6	9.7
Morgan Guaranty	9.9	10.4		
Administration (OMB)			9.2	8.4
Congressional Budget Office			9.3	8.8
NBER	9.4	9.2	9.2	8.8
Budget Deficit (billion \$)				
Wharton (calendar year)	\$158.3	\$168.0	\$141.1	\$154.3
Administration (OMB)				
(fiscal year)			109.0	115.0
Congressional Budget Office				
(fiscal year)			112.0	155.0
NBER	N/A	N/A	N/A	N/A

SOURCE: Victor Zarnowitz, "Economic Outlook Survey," *NBER Reporter* (National Bureau of Economic Research), Summer 1982, pp. 11-15; "Economy Watch," *Morgan Guaranty Survey* (Morgan Guaranty Trust Company), November 1982, pp. 3-4; Wharton Econometric Forecasting Associates Inc., *The Quarterly Model Outlook Data Supplement*, October 20, 1982; Congressional Budget Office, *The Economic and Budget Outlook: An Update*, September 1982.

TABLE 8
U.S. GNP COMPONENTS IN REAL TERMS
FIRST QUARTER 1981 THROUGH SECOND QUARTER 1982
(Billions of 1972 Dollars)

	1981	1981.1	Seasonally Adjusted at Annual Rates				1982.2
			1981.2	1981.3	1981.4	1982.1	
Gross National Product	1,502.6	1,507.8	1,502.2	1,510.4	1,490.1	1,470.7	1,475.3
Personal Consumption Expenditures	947.6	951.1	944.6	951.4	943.4	949.1	953.8
Durable Goods	140.0	145.3	138.6	142.2	134.1	137.5	138.0
Nondurable Goods	362.4	361.6	361.7	363.0	363.1	362.2	364.6
Services	445.2	444.2	444.3	446.2	446.2	449.5	451.2
Gross Private Domestic Investment	225.8	221.6	229.5	233.4	218.9	195.4	201.0
Fixed Investment	216.9	219.2	217.4	216.9	214.1	210.8	206.3
Nonresidential	172.0	169.7	170.1	173.9	174.2	172.0	166.4
Structures	51.6	49.5	51.0	52.5	53.3	53.5	53.8
Producers' Durable Equipment	120.4	120.1	119.1	121.4	120.9	118.5	112.6
Residential	44.9	49.6	47.3	42.9	39.9	38.9	39.9
Nonfarm Structures	42.1	47.0	44.6	39.9	36.7	36.0	36.9
Farm Structures	.9	.6	.7	1.0	1.2	1.0	1.2
Producers' Durable Equipment	2.0	2.0	2.0	2.0	2.0	1.9	1.9
Change in Business Inventories	9.0	2.4	12.1	16.5	4.8	-15.4	-5.3
Nonfarm	6.8	2.0	10.2	13.6	1.6	-15.6	-4.7
Farm	2.1	.4	1.9	3.0	3.2	.2	-.6
Net Exports of Goods and Services	42.0	48.2	44.2	39.2	36.5	36.9	35.7
Exports	158.5	159.3	159.7	157.8	156.9	151.7	154.0
Imports	116.4	111.1	115.5	118.7	120.4	114.7	118.3
Government Purchases of Goods and Services	287.1	286.8	283.9	286.4	291.3	289.2	284.7
Federal	110.4	107.9	107.0	110.7	116.0	114.4	109.8
National Defense	73.5	71.0	72.9	74.3	76.1	74.5	77.6
Nondefense	36.8	36.9	34.1	36.5	39.9	39.8	32.2
State and Local	176.7	179.0	176.9	175.7	175.3	174.9	174.9

SOURCE: From U.S. Department of Commerce, *Survey of Current Business*, August 1982, p. 4.

TABLE 9

PROJECTED U.S. GNP COMPONENTS IN REAL TERMS,
THIRD QUARTER 1982 THROUGH THIRD QUARTER 1984

	1982.3	1982.4	1983.1	1983.2	1983.3	1983.4	1984.1	1984.2	1984.3	1981	1982	1983	1984
Gross National Product 1972 \$	1481.2	1489.2	1500.4	1516.8	1537.4	1556.7	1576.9	1597.3	1614.3	1502.6	1479.9	1527.8	1604.7
Percent Change GNP	.8	2.2	3.0	4.3	5.5	5.1	5.3	5.3	4.3	1.9	-1.5	3.2	5.0
Personal Consumption Expenditures	958.4	964.9	972.6	983.7	995.9	1008.7	1020.6	1031.6	1039.9	947.6	956.8	990.2	1034.7
Percent Change	1.4	2.8	3.2	4.6	5.1	5.2	4.8	4.4	3.2	-1.8	1.0	3.5	4.5
Durable Goods	136.8	139.6	143.3	148.0	153.8	160.4	165.4	168.2	170.3	140.0	138.0	151.4	168.7
Percent Change	-4.3	8.2	11.2	13.9	16.6	18.3	12.8	7.1	5.0	2.2	-1.4	9.7	11.5
Non-durable Goods	366.9	368.2	369.6	372.3	375.4	378.4	381.6	385.5	388.7	362.4	365.4	374.0	386.8
Percent Change	2.7	1.5	1.6	3.0	3.4	3.2	3.4	4.2	3.3	1.8	.8	2.3	3.4
Services	454.6	457.2	459.6	463.3	466.6	469.8	473.6	477.8	480.9	445.2	453.4	464.8	479.2
Percent Change	2.2	2.2	2.2	3.2	2.9	2.8	3.3	3.6	2.6	1.7	1.8	2.5	3.1
Gross Private Domestic Investment	202.1	205.4	208.0	212.8	221.2	227.4	232.4	238.4	243.2	225.8	201.3	217.3	240.3
Percent Change	-4	6.6	5.2	9.7	16.7	11.6	9.1	10.9	8.3	8.4	-10.9	8.0	10.6
Nonresidential Fixed Investment	161.0	156.5	154.1	153.8	154.7	156.7	159.1	161.9	164.5	172.0	164.1	154.8	163.2
Percent Change	-13.0	-10.7	-6.1	-6	2.2	5.2	6.3	7.4	6.5	3.5	-4.6	-5.6	5.4
Equipment	108.5	105.5	104.3	105.5	107.1	109.4	111.6	113.9	116.0	120.4	111.4	106.6	114.9
Percent Change	-15.0	-10.7	-4.3	4.4	6.5	8.7	8.1	8.8	7.6	2.4	-7.5	-4.3	7.8
Structures	52.5	51.0	49.7	48.4	47.5	47.3	47.5	48.0	48.4	51.6	52.7	48.2	48.3
Percent Change	-8.6	-10.7	-9.9	-10.5	-6.7	-2.3	2.0	4.1	3.9	6.2	2.2	-8.5	-1
Residential Fixed Investment	40.5	44.2	47.5	51.3	54.8	58.2	60.8	62.2	63.6	44.9	40.9	53.0	63.1
Percent Change	4.0	41.3	34.1	36.0	30.2	27.2	18.7	9.8	9.3	-4.9	-8.9	29.5	19.1
Change in Business Inventories	.7	4.7	6.4	7.7	11.7	12.5	12.6	14.3	15.2	8.9	-3.6	9.6	14.0
Net Exports	30.7	31.0	31.0	31.5	30.2	29.2	30.0	31.9	33.9	42.0	33.6	30.5	33.2
Exports	150.2	153.1	154.0	156.8	158.2	161.9	164.9	168.9	172.7	158.4	152.4	157.7	170.8
Percent Change	-10.4	8.0	2.2	7.6	3.6	9.6	7.7	9.9	9.5	-5	-3.8	3.5	8.3
Imports	119.5	122.1	122.9	125.3	128.1	132.6	134.9	137.0	138.9	116.4	118.7	127.2	137.6
Percent Change	2.7	8.9	2.8	7.9	9.1	15.1	7.0	6.2	5.7	7.2	2.0	7.1	8.1
Government Purchases of Goods and Services	290.0	287.9	288.8	288.8	290.2	291.4	294.0	295.3	297.4	287.1	288.1	289.8	296.4
Percent Change	6.8	-2.8	1.2	-0	2.0	1.7	3.5	1.9	2.8	.9	.3	.6	2.3
Federal	115.3	114.3	115.5	115.5	117.4	117.8	118.4	118.5	119.0	110.4	113.6	116.6	118.8
Percent Change	19.4	-3.4	4.4	.0	6.4	1.5	2.3	.1	1.7	3.7	2.9	2.6	1.9
Defense	80.9	80.0	82.0	83.9	86.1	86.2	87.5	88.6	89.7	73.6	78.4	84.5	89.0
Percent Change	14.5	-4.6	10.7	9.4	10.9	.3	6.2	5.4	4.9	5.0	6.5	7.8	5.3
Nondefense	34.4	34.3	33.5	31.7	31.3	31.6	31.0	29.8	29.3	36.8	35.2	32.0	29.8
Percent Change	31.9	-6	-9.3	-20.5	-4.8	4.6	-7.9	-13.9	-7.5	1.3	-4.6	-8.9	-6.9
State and Local	174.7	173.6	173.2	173.3	172.9	173.7	175.5	176.8	178.4	176.7	174.6	173.3	177.6
Percent Change	-7	-2.5	-9	.0	-9	1.9	4.3	3.1	3.6	-8	-1.2	-7	2.5

SOURCE: Wharton Econometric Forecasting Associates, Inc., *Quarterly Model Outlook Data Supplement*, October 27, 1982, p. 3.

II. THE KENTUCKY ECONOMY

Charles W. Hultman

The Kentucky economy has experienced difficulties achieving full utilization of its resources during the past several months. Industrial and commercial activity in the state were affected to a great extent by developments in the national economy as described in the preceding chapter. As compared with most of 1982, the prospects are somewhat more promising for the next several months, with economic expansion expected to occur gradually. The first part of this chapter examines the state economy for the past 18 months; the second part considers projected developments through the end of 1983.

The Past Eighteen Months

Historically, the Kentucky economy has generally not been affected as seriously by recession as has the nation, and usually the state's labor unemployment rate has been somewhat below that of the nation. Throughout the 1974-75 national recession, for example, the adjusted Kentucky unemployment rate was below that of the nation, except for September 1975 when the Kentucky adjusted rate of 8.5 percent edged slightly ahead of the national 8.4 percent rate. During the recovery period that followed, the adjusted Kentucky unemployment rate was generally well below the national rate. Beginning in October 1979, however, the Kentucky adjusted unemployment rate has been at or above the national level. During the most recent period, the Kentucky rate has been among the highest in the nation.

Recent cyclical movements as reflected in monthly unemployment rates for the U.S. and Kentucky, for the period January 1981 through June 1982 are provided in Table 1. The National Bureau of Economic Research identified the upper turning point in the national economy as occurring in July of 1981. The July peak was established particularly in reference to the low unemployment rate and high level of industrial production that month. This peak is also reflected to a limited extent in Kentucky's seasonally adjusted monthly unemployment rate which, for the 18-month period, was at its lowest point by a small margin, at 7.8 percent (adjusted) in July 1981.

The 7.8 percent July figure also suggests the short-lived nature of the preceding upswing that commenced nationally in mid-1980. A downswing apparently got under way in mid-1981 before full utilization of productive

capacity had been reached, not only in the U.S. generally but also in Kentucky.

A related situation apparent in recent unemployment data is that the state's unemployment rate did not respond, during the summer of 1981 and to an extent during 1982, to the typically favorable seasonal condition. This apparently represents, in part, the failure of the construction industry to expand as is usually the case during favorable building months.

Residential construction both in the U.S. and Kentucky follows a pattern somewhat different from the regular business cycle, usually leading the regular cycle. Activity in Kentucky's residential construction, as reflected in an index of permit-authorized residential construction, peaked in 1977 and has since fallen each year through 1982. During 1977, a total of 17,000 residential construction permits were issued in Kentucky. The number of permits generally declined since then, dropping over 50 percent to about 7,600 in 1981 and to an even lower annual rate during the first half of 1982.

A related indication of change for the state is the decline in total building construction (residential and nonresidential). Although nonresidential construction remained somewhat constant, the value of total construction declined about 11 percent in 1981 as compared with 1980.

Labor Force Developments

Analysis of Kentucky's employment figures suggests that the failure to expand to full utilization of productive capacity in mid-1981, and the subsequent decline in activity, were related to national developments. High interest rates had initial adverse effects on the construction and automotive industries. In Kentucky new permit authorizations declined, and employment in contract construction dropped significantly during 1981 and early 1982. Employment in Kentucky's transportation equipment industry in 1981 and early 1982 remained at about 70 percent of the peak reached in 1978. Subsequently, other related industries were also affected. The sharp decline in production of electrical equipment and supplies, for example, relates in part to the decline in home construction and therefore the decline in demand for certain types of electrical appliances that would otherwise go into the new homes.

The overall impact of the recessions is reflected in recent annual changes in employment covered under the unemployment insurance program (Table 2). Covered employment expanded through 1979 but the recessions adversely affected the Commonwealth beginning in 1980. Because the recovery occurring later in 1980 was short-lived, employment in 1981 was 39,500 less than in the peak year of 1979.

Quarterly information on Kentucky's labor force, for the period the first quarter of 1981 through the second quarter of 1982, is presented in Table 3.

Although quarter-to-quarter changes vary somewhat, it appears that state industry trends are not unlike those that characterize the nation. For example, contract construction rose somewhat in the second and third quarters of 1981, but fell off substantially thereafter. Durable goods production followed a similar pattern whereas nondurable goods production remained somewhat more constant over the period.

Perhaps the most notable change evident in Table 3 is the 25.6 thousand increase in unemployment from the first quarter of 1981 to the first quarter of 1982. Although a few industries experienced slight employment gains over this period (including mining; electric, gas and sanitary services; and the service sector), the decline affected several sectors. Durable manufacturing was down almost 9 thousand employees; nondurable manufacturing, about 3 thousand; retail trade, 4 thousand; and contract construction, 5.5 thousand.

Additional detail within manufacturing is provided in Table 4 which shows employment trends for the durable and nondurable goods producing sector for the period covering the first quarter of 1981 through the second quarter of 1982. The largest employment decline occurred in the production of machinery which dropped from 74.43 thousand to 64.47 thousand over this period. Other manufacturing sectors either gained slightly or declined slightly.

In terms of broad categories, the industrial distribution of Kentucky workers is not substantially different from that of the nation. Mining, of course, is a relatively more important source of employment in Kentucky and services is a somewhat less important source.

At both national and state levels, manufacturing is becoming relatively less important than, for example, ten years ago. Although this decline represents a long term trend, it may be an important consideration relating to cyclical recovery during the next few years; the peak levels of employment that occurred in most manufacturing industries in 1978 and 1979 may not be reached in Kentucky until a strong, persistent recovery occurs. Alternatively, the long term trend toward relatively more employment in the services, trade, and finance industries suggests that full recovery may occur at a somewhat earlier time in these sectors.

Hours and Earnings

Although the manufacturing employment situation deteriorated from the first quarter of 1981 to the first quarter of 1982, the average hourly earnings of production workers increased about 8.7 percent (from \$7.66 to \$8.33). The amount of gain varied among industries but generally the largest gains were experienced in industries that were already well paid compared with other sectors.

The average hours worked per week in manufacturing probably reflected the impact of the recession more accurately. The average number of hours

rose slightly from the 39.73 that characterized the first quarter of 1981, but then declined to 38.1 by the second quarter of 1982.

Personal Income

Kentucky's total personal income rose from \$27,717 million in 1980 to \$30,836 million in 1981, an increase of approximately 11.25 percent. This was somewhat below the national average gain of 12 percent and below the average growth rate of the 12 southeastern states of 13 percent.

Kentucky's per capita income increased from \$7,552 in 1980 to \$8,420 in 1981. Per capita income figures also reflect a change in Kentucky's relative position. Preliminary data for 1981 indicate that the state per capita income was about 80.3 percent of the nation; in 1979, it was 82.0 percent and in 1980, 80.0 percent. Although per capita income rose by about 11.5 percent from 1980 to 1981, the real growth was minimal after accounting for inflation.

Additional information on quarterly developments in Kentucky's personal income by sector is contained in Table 5. For some sectors, personal income declined during the year; this was true of farming, contract construction, and durable manufacturing. The growth rate was positive in such sectors as transportation, communications and utilities, wholesale and retail trade, and the service sector. But overall, personal income in Kentucky declined during the second quarter of 1982.

Transfer Payments

The impact of economic fluctuations in the state is also apparent in the relative importance of transfer payments in the personal income of Kentucky residents. As indicated in Table 6, Kentuckians received almost \$2.9 billion in the form of transfer payments (old age and survivor's benefits, retirement payments, unemployment insurance, food stamps, etc.) in 1976; this represented about 15.6 percent of total Kentucky personal income for the year. Because of relative prosperity and employment opportunities, this share declined in the late 1970s. But with a slowdown in economic activity in the state in 1980, transfer payments rose to 16.3 percent of personal income as a result of the expansion of outlays particularly for unemployment insurance, food stamps, and other income maintenance payments. The portion increased slightly more in 1981 when transfer payments rose to 16.4 percent of Kentucky's personal income.

A major benefit of such programs, of course, is that they tend to be somewhat counter-cyclical in nature; by maintaining at least a minimal level of income during recession, they add an element of stability to personal income and consumer spending. This is apparent, for example, in the volume of

payments made to unemployed workers under the state's unemployment insurance program. During the period January 1, 1981 through June 30, 1982, payments to unemployed workers, excluding reimbursables, under the regular and extended (state's share) program amounted to \$408.7 million—a monthly average of \$22.7 million. Because of expanded program coverage and benefit amounts, comparisons with previous years must be tentative; for example, the monthly cost during 1978, a year of relative prosperity, was only \$8.5 million, excluding reimbursables.

A general indication of the industrial composition of the unemployment for 1981 is provided in Table 7. This table shows unemployment insurance benefit payments to jobless workers as a percent of taxable wages for each major sector of the Kentucky economy. The figures are for the entire year but reflect seasonal as well as secular and cyclical unemployment. (Some unemployment is a normal part of a year's construction activity.) As expected, the ratio is highest for contract construction which was strongly affected by the recession and also by its normal annual seasonal unemployment. Benefit payments tend to be lowest, relatively speaking, in the various service categories.

Tax Revenues

Conditions in the economy affect the government sector as well as the private sector. The level of state revenue receipts and, accordingly, the amount available to the state for current expenditures, depends upon several factors including the level of economic activity within the state. Because of inflation, economic growth, changes in tax provisions, and related factors, General Fund receipts have grown substantially each year. For example, from fiscal year 1971-72 through fiscal year 1978-79 the annual increase has ranged from 10.0 percent to 21.5 percent with the lowest gains occurring in connection with the 1975 recession (fiscal year 1976). However, the growth in General Fund revenue was on average less during fiscal years 1979-80, 1980-81 and 1981-82 than during the preceding several years.

The Commonwealth and Economic Stability

A state, as a small part of the larger national economic unit, is significantly affected by developments beyond its borders. The economic well-being of the U.S. determines the size of the market in which a particular state's producers sell their products externally. Federal government policies relating to a wide range of transfer payments, taxation policies, and spending for a variety of goods and services, affect the nature and level of activity in each and every state. Monetary policy—discount rates, monetary growth targets, and credit conditions—is basically directed toward the national economy although the

impact may vary from region to region.

Historically, Kentucky has during some periods benefited, and during others been placed at a disadvantage, by developments beyond its borders. For example, the decline in national defense spending during the early 1960s had a seriously adverse impact upon several states; Kentucky was barely touched by the decline. During the 1975 recession, a strong coal market and overseas demand for agricultural products helped prevent a more serious decline in the Commonwealth than that of many other states.

The 1981-82 recession appears to be related to a great extent to high interest rates and the decline in residential construction and automobile production. But residential construction (as reflected, for example, in an index of permit-authorized residential construction) dropped off earlier and to a greater extent in Kentucky than in the nation. In addition, firms in the state produce a wide range of consumer and producer durables that are used either in new residential structures or in the construction of such structures.

In terms of the significance of the impact of the automobile industry, Kentucky does not produce a large volume of cars and trucks by national standards. But a substantial volume of employment in manufacturing within the state is linked to automobile production—batteries, bearings, carburetors, etc. As a result, the state has been affected more seriously by economic conditions during the past few years than has the nation. And, unlike the federal government, a state government can do little to soften the impact of cyclical change. States must balance their budgets annually; their power to borrow and increase spending when tax receipts are declining is limited to projects that are basically long term in nature. Incentives to attract new industry or to retain existing firms may have a beneficial long term effect for a given state but are usually too inflexible to have an immediate impact on declining employment, income, and tax revenues.

A state or city could actively discourage cyclical industries in an effort to stabilize its economy. A major disadvantage of a strategy of this type is that many of the cyclical industries are also those which over time have provided the greatest long term growth potential. Some of the durable goods industries fall into this category. A second factor is that a state or city striving for growth, or seeking to find employment for local workers or a tax base for revenue purposes, is not likely to place a high priority on the stability of the activity generated.

The Next Eighteen Months

As noted in the preceding chapter, the various sets of projections suggest that the 2.1 percent growth in real GNP during the second quarter of 1982, following the sharp declines of the preceding two quarters, may indicate that the bottom of the recession has been reached. However, a slight expansion in

activity can be expected not only at the national level, but also within the Commonwealth for much of 1983. The remainder of the present chapter will consider developments in a general way in the state for the next 18 months, including projected labor force and wage figures for the period ending with the fourth quarter of 1983. The following chapters will examine in greater detail anticipated developments in three key sectors of the state—coal, agriculture, and residential construction.

Total Civilian Labor Force

According to preliminary figures, Kentucky's civilian labor force was about 43,000 lower in the first quarter of 1982 than in the first quarter of 1981 (Table 8). Very little economic recovery is apparent in the labor force figures projected through the end of 1983. (These projections are preliminary experimental results of an unpublished study by Professor M. Ali of the University of Kentucky.) Although there are quarterly variations, the state's labor force is projected to decline to 1,595 thousand by the fourth quarter of 1982, and to increase slightly to 1,605 thousand by the fourth quarter of 1983. These figures may be somewhat pessimistic given the decline in the Federal Reserve discount rate during the last half of 1982, although there are inclinations that recovery in employment will be unusually slow.

Wage and Salary Employment

A somewhat similar trend is reflected in Kentucky's wage and salary employment (Table 9). Wage and salary employment will decline during the first part of 1983 but by the fourth quarter of 1983, the number of wage and salary workers will reach 1,176 thousand.

Projected wage and salary income for Kentucky through the fourth quarter of 1983 is presented in Table 10. The general trend is for a gradual increase in income (in current dollars) over the period; fourth quarter 1982 income is almost 7.0 percent higher than the comparable 1981 quarter and fourth quarter 1983 income is about 6.2 percent above the comparable 1982 figure. Essentially, the projections suggest that real wage and salary income will increase slightly through the end of 1983 but that employment gains will be very limited.

State Tax Revenue Expectations

As noted previously, Kentucky's General Fund receipts increased at a slower rate during the past three fiscal years than they had since the 1977 fiscal year. The lower growth rate resulted from several factors including the reduced volume of economic activity in the Commonwealth during those

years.

The Kentucky Revenue Cabinet estimates, from May 1982 projections, that total General Fund receipts will increase about 12.05 percent during fiscal year 1982-83 (from \$2,098.53 million in fiscal year 1981-82 to \$2,351.40 in fiscal year 1982-83). The largest growth is expected in receipts from the individual income tax resulting in part from the mid-1982 federal tax reductions embodied in the Economic Recovery Tax Act. Some growth will also occur as a result of new taxes imposed on distilled spirits, beer, and wine at the wholesale level.

Summary and Conclusions

The nature of the 1981-82 recession, particularly regarding high interest rates and their impact on the automobile and construction sectors, has had an unusually adverse impact on the Kentucky economy. Unemployment of the labor force, perhaps the single most important indicator of the cost of recession, reached levels during the period April through mid-1982 that had not prevailed since prior to World War II. In addition to heavy unemployment in contract construction, job losses were high in durable and nondurable manufacturing, and in retail trade. For the past three years, there has also been an increase in the state's personal income derived from transfer payments.

Despite the pessimism of the past several months there is at least limited room for optimism for late 1983. Inflationary pressures have eased and there are some indications of economic expansion, although at a very gradual rate and with unemployment remaining relatively high through much of 1983.

At the national level, the 2.1 percent increase in real GNP during the second quarter of 1982, the generally stable level of the Composite Index of Leading Indicators during the months of April through August, and the Federal Reserve's reduction in the discount rate from 12 percent to below 10 percent, are indications of possible change. Kentucky's civilian labor force is projected to reach at least 1,605 thousand by the fourth quarter of 1983 and wage and salary income to be at least \$21,088 million by the end of 1983. Greater improvement could occur in the Kentucky economy if interest rates were to decline significantly or if employment creating measures were introduced at the national level.

TABLE 1
MONTHLY UNEMPLOYMENT RATES,
KENTUCKY AND THE U.S.

	<u>U.S.</u>	<u>Kentucky</u>	
	<u>Adjusted</u>	<u>Adjusted</u>	<u>Unadjusted</u>
1981			
January	7.4%	8.0%	9.5%
February	7.4	7.9	9.7
March	7.3	8.3	8.9
April	7.3	8.7	8.5
May	7.5	8.9	8.1
June	7.4	8.2	8.4
July	7.2	7.8	8.1
August	7.3	8.0	7.7
September	7.6	7.9	6.9
October	8.0	8.1	7.0
November	8.3	9.9	8.8
December	8.8	9.8	9.5
1982			
January	8.5	9.7	11.5
February	8.8	9.4	11.5
March	9.0	10.0	10.7
April	9.4	10.4	10.3
May*	9.5	10.7	9.8
June	9.5	10.4	10.7

*In terms of absolute numbers, the U.S. 9.5 percent rate in May represented about 10.4 million workers; the 9.8 percent rate for Kentucky represented about 160 thousand workers.

SOURCE: U.S. Bureau of Labor Statistics; Kentucky Department for Human Resources; Kentucky Economic Information System.

TABLE 2
AVERAGE MONTHLY COVERED
EMPLOYMENT, KENTUCKY,
1977-81

<u>Year</u>	<u>Employment</u>
1977	926,100
1978	983,931
1979	1,145,553
1980	1,112,043
1981	1,106,053

SOURCE: Kentucky Department for Human Resources, and Kentucky Economic Information System.

TABLE 3
KENTUCKY LABOR FORCE, EMPLOYMENT, AND UNEMPLOYMENT,
FIRST QUARTER 1981 THROUGH SECOND QUARTER 1982
(Thousands of Workers)

	1981.1	1981.2	1981.3	1981.4	1982.1	1982.2
Total Civilian Labor Force	1640.80	1673.63	1657.47	1676.10	1597.63	1626.73
Employment By Place of Residence	1486.98	1534.12	1531.94	1534.96	1418.27	1459.03
Agricultural	48.60	67.83	77.57	70.23	47.97	66.10
Nonagricultural	1438.38	1466.29	1454.37	1464.73	1370.30	1392.93
Unemployment	153.82	139.51	125.54	141.14	179.37	167.70
Unemployment Rate	9.37	8.34	7.57	8.42	11.23	10.31
Total Nonagricultural Wage and Salary Employment	1187.87	1196.57	1187.17	1201.27	1168.50	1165.50
Manufacturing	271.57	276.90	275.33	264.63	259.83	250.63
Durable Goods	151.73	156.87	153.63	144.27	143.13	137.67
Nondurable Goods	119.83	120.03	121.70	120.37	116.70	112.97
Mining	52.67	41.50	53.33	54.33	53.30	53.57
Bituminous Coal Mining	47.50	35.63	48.03	48.70	48.37	47.77
Contract Construction	47.83	51.87	54.23	51.53	42.37	45.63
Transportation	36.40	36.33	36.97	37.43	35.87	35.57
Communications	16.53	16.50	16.43	15.97	15.63	15.53
Electric, Gas and Sanitary Services	13.63	13.87	14.27	14.07	14.10	14.43
Wholesale Trade	62.80	61.07	61.87	64.57	62.73	60.37
Retail Trade	192.40	196.37	195.90	198.33	188.63	189.80
Finance, Insurance and Real Estate Services	52.23	52.50	51.97	51.33	51.40	51.57
Civilian Government	211.13	216.67	213.83	217.03	214.30	217.00
Federal Government, Excluding Military	230.67	233.00	213.03	232.03	230.37	231.40
State and Local Government	38.63	38.77	38.90	39.40	39.03	39.70
Excluding Education	192.00	194.23	174.17	192.63	191.33	191.70
Education	80.80	85.33	85.00	81.03	80.23	83.40
Education	111.20	108.90	89.17	111.60	111.10	108.30

SOURCE: Kentucky Department for Human Resources and Kentucky Economic Information System.

TABLE 4
KENTUCKY EMPLOYMENT BY MANUFACTURING INDUSTRIES,
FIRST QUARTER 1981 THROUGH SECOND QUARTER 1982
(Thousands of Workers)

	1981.1	1981.2	1981.3	1981.4	1982.1	1982.2
Total Nonagricultural Wage and Salary	1187.87	1196.57	1187.17	1201.27	1168.50	1165.50
Manufacturing, Total	271.57	276.90	275.33	264.63	259.83	250.63
Manufacturing, Nondurable Goods	119.83	120.03	121.70	120.37	116.70	112.97
Food and Kindred Products (SIC 20)	20.97	20.80	21.40	21.70	20.60	20.43
Distilled Liquors, Excluding Brandy (SIC 2085)	4.93	5.00	5.17	5.57	4.90	4.77
Tobacco Manufactures (SIC 21)	12.17	9.93	10.23	11.07	11.33	8.87
Cigarette Manufacture (SIC 211)	8.63	8.30	8.53	8.53	8.23	7.53
Textile Mill Products (SIC 22)	6.20	6.27	6.27	5.90	5.57	6.10
Apparel (SIC 23)	25.83	26.83	26.93	25.90	25.47	24.53
Men's and Boys' Suits, Coats (SIC 231, 232)	18.87	19.43	19.30	18.57	18.70	17.77
Paper and Allied Products (SIC 26)	7.03	7.33	7.53	7.50	7.17	7.20
Printing and Publishing (SIC 27)	14.70	14.63	14.70	14.90	14.70	14.57
Chemicals and Allied Products (SIC 28)	15.23	15.50	15.47	15.00	14.63	14.37
Industrial Chemicals (SIC 281)	4.40	4.53	4.53	4.40	4.13	4.00
Plastic Materials and Synthetics (SIC 282)	5.40	5.30	5.23	5.17	5.03	4.93
Paints and Allied Products (SIC 285)	1.70	1.77	1.80	1.77	1.70	1.77
Petroleum, Coal, Rubber and Plastic Products (SIC 29, 30)	14.27	14.83	15.27	14.67	13.90	13.77
Petroleum and Coal Products (SIC 29)	3.83	4.00	4.30	4.17	3.90	4.00
Rubber and Miscellaneous Plastic Products (SIC 30)	10.43	10.83	10.97	10.50	10.00	9.77
Leather and Leather Products (SIC 31)	3.43	3.90	3.90	3.73	3.33	3.13
Manufacturing, Durable Goods	151.73	156.87	153.63	144.27	143.13	137.67
Lumber and Wood Products, Excluding Furniture (SIC 24)	9.00	9.47	9.40	8.93	8.13	8.60
Furniture and Fixtures (SIC 25)	4.73	4.73	4.73	4.70	4.37	4.00
Stone, Clay and Glass (SIC 32)	7.97	9.60	10.10	9.83	9.33	9.40
Primary Metals (SIC 33)	17.97	18.60	18.87	18.10	17.40	16.57
Blast Furnace and Basic Steel Products (SIC 331)	7.77	8.17	8.53	8.03	7.60	7.23
Fabricated Metal Products (SIC 34)	17.87	18.30	18.27	17.37	16.83	16.47
All Machinery (SIC 35 and 36)	74.43	75.10	72.33	66.07	66.73	64.47
Machinery, Excluding Electrical (SIC 35)	39.30	39.13	39.17	38.80	36.90	35.83
Electrical Equipment and Supplies (SIC 36)	35.13	35.97	33.17	27.27	29.83	28.63
Transportation Equipment (SIC 37)	12.67	13.43	11.70	11.20	12.83	10.67
Other Durable Goods (SIC 38 and 39)	7.10	7.63	8.23	8.07	7.50	7.50

SOURCE: Kentucky Department for Human Resources and Kentucky Economic Information System.

TABLE 5
KENTUCKY PERSONAL INCOME, WAGES AND SALARIES,
FIRST QUARTER 1981 THROUGH SECOND QUARTER 1982*
(Millions of Current Dollars)

Personal Income	1981.1	1981.2	1981.3	1981.4	1982.1	1982.2
Total Personal Income, By Place of Residence	\$29,949	\$29,964	\$31,533	\$31,898	\$32,129	\$31,954
Wage and Salary Disbursement, Total, By Place of Work	17,880	17,521	18,379	18,635	19,217	18,765
Farm	123	130	135	140	142	145
Nonfarm	17,757	17,391	18,244	18,495	19,075	18,620
Agriculture Services, Forestry, Fisheries, and Other	57	57	58	60	61	62
Mining	1,363	991	1,505	1,575	1,618	1,543
Contract Construction (SIC 15-17)	990	889	896	941	999	906
Total Manufacturing	4,822	4,883	4,981	4,825	5,094	4,831
Nondurable Goods	1,931	1,966	2,009	1,988	2,096	2,002
Durable Goods	2,891	2,918	2,972	2,837	2,998	2,829
Transportation, Communications and Utilities (SIC 40-49)	1,407	1,398	1,449	1,452	1,467	1,448
Wholesale and Retail Trade (SIC 50-59)	2,711	2,718	2,800	2,815	2,853	2,834
Wholesale Trade (SIC 50-51)	1,020	1,030	1,068	1,086	1,102	1,105
Retail Trade (SIC 52-59)	1,691	1,688	1,732	1,729	1,751	1,729
Finance, Insurance and Real Estate (SIC 60-67)	742	745	765	769	786	793
Total Services (SIC 70-89)	2,256	2,272	2,341	2,403	2,466	2,459
Total Government	3,409	3,437	3,449	3,655	3,731	3,743
Federal Civilian	675	693	732	782	789	778
Federal Military	550	536	527	623	633	640
State and Local	2,185	2,208	2,190	2,250	2,309	2,326
Other Labor Income, By Place of Work	1,949	1,899	2,046	2,091	2,211	2,171
Proprietors' Income, By Place of Residence	2,249	2,289	2,503	2,384	1,938	1,868
Farm	972	1,022	1,234	1,123	696	643
Nonfarm	1,277	1,267	1,269	1,261	1,241	1,225

*All series seasonally adjusted at annual rates.

SOURCE: U.S. Bureau of Economic Analysis and Kentucky Economic Information System.

TABLE 6
TRANSFER PAYMENTS TO KENTUCKIANS AS
A SHARE OF PERSONAL INCOME,
1976-81
(Millions of Dollars)

Year	Transfer Payments	Personal Income	Transfers as Percent of Personal Income
1976	\$2,896	\$18,582	15.6%
1977	3,081	20,722	14.9
1978	3,283	23,024	14.2
1979	3,782	25,880	14.6
1980	4,528	28,118	16.3
1981	5,063	30,966	16.4

SOURCE: Bureau of Economic Analysis, U.S. Department of Commerce; Kentucky Economic Information System.

TABLE 7
KENTUCKY UNEMPLOYMENT INSURANCE
BENEFITS AS A SHARE OF TAXABLE
WAGES, 1981

Industry Groups	Percent of Taxable Wages
All Industries	3.9%
Mining	4.2
Contract Construction	11.0
Manufacturing	4.6
Transportation, Utilities	2.2
Wholesale Trade	2.3
Retail Trade	2.2
Finance, Insurance, Real Estate	1.1
Services	2.2

SOURCE: Division of Unemployment Insurance, Department for Human Resources, Frankfort, Ky.; Kentucky Economic Information System.

TABLE 8
KENTUCKY'S CIVILIAN LABOR FORCE,
ACTUAL AND PROJECTED,
FIRST QUARTER 1981 THROUGH FOURTH QUARTER 1983
(Thousands of Workers)

Year	Quarters			
	I	II	III	IV
1981	1,640.80	1,673.63	1,657.47	1,676.10
1982	1,597.63	1,626.73	1,612	1,605
1983*	1,584	1,623	1,600	1,605

*Amounts for third quarter 1982 and later are forecasted amounts.

SOURCE: Kentucky Economic Information System and projections by M. Ali.

TABLE 9
KENTUCKY'S WAGE AND SALARY EMPLOYMENT,
ACTUAL AND PROJECTED,
FIRST QUARTER 1981 THROUGH FOURTH QUARTER 1983
(Thousands of Workers)

Year	Quarters			
	I	II	III	IV
1981	1,187.87	1,196.57	1,187.17	1,201.27
1982	1,168.50	1,165.50	1,142	1,184
1983*	1,165	1,156	1,139	1,176

*Amounts for third quarter 1982 and later are forecasted amounts.

SOURCE: Kentucky Economic Information System and projections by M. Ali.

TABLE 10
KENTUCKY'S WAGE AND SALARY INCOME,
ACTUAL AND PROJECTED,
FIRST QUARTER 1981 THROUGH
FOURTH QUARTER 1983
(Millions of Current Dollars)

Year	Quarters			
	I	II	III	IV
1981	\$17,880	\$17,521	\$18,379	\$18,635
1982	19,217	18,765	19,104	19,865
1983*	20,493	19,868	20,525	21,089

*Amounts for third quarter 1982 and later are forecasted amounts.

SOURCE: Kentucky Economic Information System and projections by M. Ali.

III. THE CHANGING KENTUCKY ECONOMY: 1970 TO 1980

Don M. Soule

Per capita personal income in Kentucky peaked at 83 percent of the national average in 1976-77 and thereafter declined relative to averages for both the nation and the 12 southeastern states. These relative declines followed a period of several decades during which Kentucky's average income gained relative to the national average (Table 1). For example, Kentucky gained on the nation by 13 percentage points between 1940 and 1950, by 6 percentage points between 1950 and 1960, and by 6 percentage points between 1960 and 1970. Similar gains were experienced between 1970 and 1976-77. But declines were recorded for 1978, 1979, and 1980, with Kentucky's average income falling to 80 percent of the national average in 1980. Kentucky almost reached the southeastern states' average in 1976 and 1977 (98 percent) but declined to 94 percent by 1980. The statistical evidence clearly shows that the Kentucky economy, as measured by per capita personal income, has suffered relative decline since 1977. While both Kentucky and the nation experienced slow economic growth in the last several years, the slowness in Kentucky was greater than in the nation.

What are the possible causes of Kentucky's relative decline in average personal income, and what statistical comparisons can be made to find and to demonstrate them? Many possible causes might be discovered from an exhaustive examination of Kentucky economic statistics. In this brief study, main emphasis is on analysis of the types and sources of personal income as they have changed in relative importance over the 1970-80 decade.¹ (Changes in 1981 and 1982 are reported in the December 1982 issue of *Kentucky Economy: Review & Perspective*.)

Three groups of comparisons are made for the period 1970-80. (1) Total personal income is analyzed as to relative importance of the six main sources: farm wage and salary workers' incomes; farm proprietors' incomes; transfer incomes (mainly government income supports for persons and businesses); investment incomes (dividends, interest, and rents); nonfarm proprietors' incomes; and nonfarm wage and salary workers' incomes. (2) Within the largest of these income sources (nonfarm wage and salary workers' incomes), analysis is made of the industrial distribution of total income and employment, and of average income per worker. (3) The manufacturing sector is analyzed as to relative importance of nondurable and durable manufacturing

groups, in total income and employment, and in average income per worker.

The main statistical comparison methods used are to show parts as percents of totals, percent changes over the years, and Kentucky amounts as percents of national amounts. These methods are sometimes combined in the technique of computing "relatives." In computing relative index numbers, the method is first to express both Kentucky and national amounts, by years, as percents of the 1970 amounts (index numbers) and second to express the Kentucky index numbers as percents of the national index numbers to obtain relative index numbers. When a relative index number is larger than 100, it indicates that, for the item measured, Kentucky's percent growth since 1970 was larger than the nation's growth, whereas a relative index number less than 100 indicates slower-than-national growth in Kentucky since 1970.

A similar use of relatives is to express Kentucky percents as percentages of U.S. percents. For example, a particular item under study might be 10 and 15 percent of the Kentucky totals in 1970 and 1980 and be 8 and 11 percent of the U.S. totals in 1970 and 1980, respectively. By expressing the Kentucky 1970 value (10 percent) as a percent of the 1970 U.S. value (8 percent), Kentucky is shown to be 125 percent of the U.S. in 1970, indicating above-average emphasis on this item. Similarly for 1980, the Kentucky value can be shown to be 136 percent of the U.S. value. Thus, Kentucky in this hypothetical example is shown to be above the national average in both years but also to have increased its above-average position between 1970 and 1980. Conversion to relatives greatly eases and clarifies the comparison process.

Major Sources of Personal Income

Table 2 shows the importance of six main income sources, for Kentucky and the nation, for 1970 and 1980. Incomes of wage and salary workers and of proprietors are shown separately for the farm and nonfarm sectors, but investment incomes and transfer incomes are shown only for the two sectors combined. Statistical comparisons are made using two methods. The first method shows the relative importance of each of the six sources in the group-of-six total, for Kentucky and the U.S., by expressing parts as percents of totals. The second method shows how the Kentucky values relate to the same for the nation by expressing the Kentucky percents as percentages of the U.S. percents. By this second method, the importance of a particular income source in Kentucky can be shown to be greater or less than the importance of that source in the nation. It also can identify a change in importance between 1970 and 1980. For example, incomes of farm proprietors were 3.4 percent of the total in Kentucky in 1970 and 1.6 percent in 1980, indicating decreased importance of that source in Kentucky. The U.S. values are smaller than the Kentucky values, but a similar reduction occurred for the nation. When the 1970 Kentucky value is expressed as a percent of the 1970 U.S.

value, the result is 189. This indicates that farm proprietors' incomes are 1.89 times as important in the Kentucky total as in the U.S. total. But the similar computation for 1980 shows farm proprietors' income in Kentucky to be only 1.6 times its importance in the national economy. The two Kentucky relative values—189 and 160—shown in the last two columns of Table 2, indicate that farm proprietors' incomes are of above average importance in Kentucky relative to the nation but that Kentucky's above average position in this income source declined between 1970 and 1980.

Looking more broadly at Table 2, transfer incomes increased in relative importance for both Kentucky and the nation between 1970 and 1980, with the increase slightly greater for Kentucky. This above average position in both importance and growth of transfer incomes suggests a need to depend upon governmental income support programs and therefore is consistent with Kentucky's low income position relative to the nation. Kentucky in 1970 was above the national average in dependence upon all income sources except investment incomes. But Kentucky's position declined by 1980 in three of these sources—farm wage and salary incomes, farm proprietors' incomes, and nonfarm proprietors' incomes. Because of these declines, Kentucky's relative dependence on nonfarm wage and salary incomes increased relative to the nation between 1970 and 1980.

Table 3 uses the method of relative index numbers to compare Kentucky to the nation in annual changes for six income sources over the period 1970 to 1980. Both the Kentucky and U.S. amounts for each year are expressed as percents of their 1970 amounts to create index numbers, and the Kentucky index numbers are expressed as percents of the U.S. index numbers to create relative index numbers. A relative index number above (below) 100 indicates that Kentucky growth was above (below) the U.S. rate since 1970.

Transfer incomes increased in Kentucky relative to the nation in 1973 and generally continued at that level through 1980. For the five income sources other than transfers, a common development was a tendency for Kentucky's income sources to show greater than national growth in the first half of the 1970 decade but to show a slower and sometimes less-than-national rate of growth in the second half. Peak years occurred in 1978 for farm wage and salary workers, in 1976 for farm proprietors, and in 1977 for investments and nonfarm proprietors. Especially interesting is the plateau in the years 1977 to 1979 in nonfarm wage and salary incomes, in which Kentucky did not decline relative to the nation until 1980.

These comparisons suggest that Kentucky's relative decline in per capita personal income, after the 1976-77 peak, was caused by income sources other than nonfarm wage and salary incomes. The declines in the farm sector and in investments were not sufficiently offset by the increases in transfer incomes, and the largest income source—nonfarm wage and salary incomes—leveled off in the three years before its decline in 1980.

Nonfarm Wage and Salary Income and Employment

Comparison of Kentucky and U.S. incomes from wages and salaries are in terms of total nonfarm wage and salary workers. Income and employment totals for each year are divided among eight industry groups: mining; construction; manufacturing; transportation and public utilities; wholesale and retail trade; finance and insurance; services; and government. Income and employment amounts are omitted for several industry groups or subgroups which are very small or for which data are not disclosed. The main comparison methods are to show: parts as percents of totals; percent changes over the years; Kentucky amounts, shares, and changes as percents of U.S. amounts, shares, and changes; and relative index numbers.

Relative Importance

The comparisons in Tables 4 to 7 serve mainly as supporting information for the analysis of income and employment growth in Tables 8 and 9. Values for the relative importance of each of the eight industry groups, in income and employment, are useful in interpreting the growth of income and employment. For example, equal percentage growth in industry groups A and B does not mean equal effect on total income because industry A might account for 5 percent, and industry B for 25 percent, of total wage and salary income. Likewise for levels of average income per worker among the eight industry groups, 5 percent growth in high wage industry C might have as much effect on total wage and salary income as a 10 percent growth in low-wage industry D. A state with high growth rates in low wage industries or in industries of small relative importance may not be improving as much as a state with lower growth rates in high wage industries or industries of large relative size. Tables 4 and 5 are similar in that they show the same comparisons separately for dollars of income and number of workers. Differences in results are caused by such additional dimensions in the income data as number of hours of the average workweek and wage rate differences.

Table 4 shows that income from wages and salaries in the manufacturing industries was the largest share for Kentucky in 1970 while finance was the smallest share. Similar comparisons are shown for Kentucky in 1980 and the U.S. in both years. The last two columns show the relative differences between Kentucky and the U.S. in both the importance of particular industry groups and the changes in their importance. In 1970, for example, wage and salary income from mining was 3.9 percent of the total for Kentucky but only 1.1 percent for the U.S. Mining's relative importance in Kentucky was 3.55 times that of mining in the U.S., as indicated by 355 percent in the next to last column. By 1980, mining's relative importance in Kentucky had increased to 411 percent as compared with mining in the U.S. Thus, the

importance of mining in Kentucky is above the national average and its importance increased between 1970 and 1980. The finance industry has less than average importance in Kentucky and its importance declined in Kentucky relative to the nation between 1970 and 1980. Much the same was true for the trade and the service groups. The transportation and public utility group is about average in Kentucky, both in relative importance and change in importance. Manufacturing declined in relative importance for both Kentucky and the U.S., but the decline in Kentucky was less than for the nation. Differences in values in Tables 4 and 5, for the same comparisons, reflect differences in wage levels and hours of average workweek, which vary among industries and between Kentucky and the U.S.

Average Income Per Worker

Table 6 shows dollars of average income per worker for Kentucky and the U.S. for eight industry groups and the totals, for 1970 and 1980. Kentucky average incomes, as expected, are below the national average in all cases except one—mining in 1980. But an important difference is revealed when the Table 6 averages are compared with the per capita personal income relatives in Table 1. Nonfarm wage and salary incomes in Kentucky, on the average per worker, were 87.3 percent of the national average in 1970 and 92.9 percent in 1980. But Kentucky's per capita personal income was lower—78 percent of the national average in 1970 and 80 percent in 1980. The lower position of Kentucky relative to the nation, in per capita personal income than in average nonfarm wage and salary income per worker, has several possible causes: below average percent of population in the labor force; below average ownership of investments; and depressed conditions in agriculture in a state still heavily dependent upon agriculture.

Table 7 shows differences among the eight industry groups in average income per worker. Mining average income in Kentucky in 1970 was 141 percent of the all-Kentucky average while service average income was only 66 percent of the all-Kentucky average. The high and low wage industries are easily identified in Table 8 for both years and for both Kentucky and the nation. The last two columns show the Kentucky percents as percentages of the U.S. percents. The Kentucky mining values of 106 for 1970 and 110 for 1980 show that Kentucky mining wages were higher, relative to other Kentucky wages, than was true for the U.S., and that this difference grew larger between 1970 and 1980. Finance is shown to be a relatively declining Kentucky industry with regard to average income per worker because finance average incomes declined from 106 to 99 percent of the all-Kentucky average between 1970 and 1980 while no decline was evident for the U.S. data. This is also shown by the latter two column amounts for finance declining from 100 to 93.

Growth in Income and Employment

Tables 8 and 9 show relative indexes of annual growth in Kentucky income and employment, by eight industry groups and totals, with Kentucky changes expressed as percents of U.S. changes since 1970. Looking broadly at both tables, declines occurred in all groups before 1980. It also is apparent that Kentucky's declines relative to the U.S. occurred earlier for employment than for income. (To make comparisons easier, an asterisk is placed beside the peak amount for each series in each table for the period 1976-80.) For example, total income peaked in 1979 while total employment peaked in 1976-77; finance income peaked in 1977-79 while finance employment peaked in 1977; and service employment peaked several years before service incomes peaked. Referring back to Table 5, the four most important industry groups for employment, in Kentucky in 1980, were manufacturing, trade, service, and government. The Table 9 growth comparisons for employment show declining Kentucky growth relative to U.S. growth for manufacturing (7 percentage points decline since the 1977 high), for trade (5 percentage points decline since the 1978 high), for services (5 percentage points decline since the 1976 high), but little change for government. Also important because of its high wage level is the Kentucky mining industry, which declined in relative importance of employment by 24 percentage points since the 1977 high. Also, the 17 percentage point decline in construction employment since the 1978 high is important because of the relatively high wages in construction.

Manufacturing Wage and Salary Income and Employment

Manufacturing accounted for 29.1 and 27.1 percent of total Kentucky nonfarm wage and salary income in 1970 and 1980 (Table 4) and for 24.5 and 21.6 percent of wage and salary employment in 1970 and 1980 (Table 5). Tables 10 through 19 compare Kentucky and the nation according to wage and salary income and employment in manufacturing, by 19 subgroups, for the period 1970 to 1980. This emphasis on manufacturing wage and salary workers is justified not only by manufacturing's relatively great importance in the Kentucky economy but also because of its vulnerability to declines during national recessions. Major emphasis in Kentucky economic development planning has been on attraction of manufacturing businesses. Also, Kentucky's recently demonstrated increased vulnerability to national recessions is believed to be related to the manufacturing sector. Finally, statistical data are relatively abundant for details in the manufacturing sector.

Relative Importance

Tables 10 and 11 show the distribution of manufacturing income and employment among nondurable and durable manufacturing groups and among ten nondurable and nine durable subgroups, for Kentucky and the U.S. for 1970 and 1980. The explanations emphasize income because the main objective of this study is to explain Kentucky's decline in average income levels since 1977. Also, the pictures for income and employment are generally similar for 1970 and 1980.

Table 11 shows that durables were more important than nondurables in both Kentucky and the U.S. in 1970 and to a greater extent in 1980. Kentucky's position relative to the nation remained constant between 1970 and 1980, as shown by values in the last two columns. Kentucky's percent of manufacturing income from nondurables was 112 percent of the U.S. values in 1970 and 113 in 1980. These values for durables were identical at 93 percent in the two years. Within totals, however, particular subgroups showed changes in relative importance, both within Kentucky and relative to the nation. Food products manufacturing, for example, declined in Kentucky from 10.3 to 8.0 percent between 1970 and 1980 while the decline was only from 8.5 to 7.6 percent for the U.S. As shown in the last two columns, the Kentucky relative for food dropped from 121 to 105 percent between 1970 and 1980. Declines (Kentucky relative to the nation) were experienced in several other nondurable subgroups (printing, chemicals, and tobacco) and durable subgroups (lumber, furniture, fabricated metals, and electrical machinery). Subgroups with increases between 1970 and 1980 were in nondurables (textiles, apparel, paper, petroleum refining, rubber, and leather) and in durables (printing, primary metals, machinery, motor vehicles, and stone).

Average Income Per Worker

Table 12 shows average annual income per worker for three manufacturing totals (all manufacturing, total nondurables, and total durables) for 1970 and 1980 for Kentucky and the nation. Kentucky average incomes were below the national averages in all three groups in both years, but Kentucky gained on the national average in all three groups between 1970 and 1980. Table 13 shows the relative levels of average incomes within Kentucky and the U.S. for 1970 and 1980. Average incomes per worker are lower in nondurables than in durables, for both Kentucky and the U.S. The gap between these two groups grew larger between 1970 and 1980, and the changes were essentially the same for Kentucky and the U.S.

Growth in Income and Employment

Tables 14 and 15 show relative indexes of annual growth in Kentucky income and employment for totals of nondurable and durable manufacturing, with Kentucky changes expressed as percents of U.S. changes since 1970. (Peak years in the period 1976 to 1980 are marked with asterisks.) In all three groups and for both income and employment, substantial relative growth occurred after 1970. But employment growth (Table 15) peaked in 1977 for all three groups. Similar peaks occurred for income (Table 14) although nondurables' incomes were essentially constant from 1976 to 1980. Declines after 1977 were generally larger for employment than for income. Also, the declines in 1980 were especially large for durables in both income and employment.

Income and employment growth for the 19 manufacturing subgroups are illustrated in Tables 16 through 19. The income comparisons are in Tables 16 (nondurables) and 17 (durables) and the employment comparisons are in Tables 18 (nondurables) and 19 (durables). (Peak years in the period 1976-80 are marked with asterisks.) Generally, the income and employment comparisons give similar pictures, although the declines in the second half of the 1970s were larger for employment than for income. The following discussion mainly concerns the income comparisons.

Table 16 for nondurable manufacturing shows income declines before 1980 in seven of the ten subgroups. These relative declines (which mean that Kentucky's growth was less than national growth) ranged from 1 percentage point for printing to 16 percentage points for leather, although tobacco products declined 20 percentage points since the 1973 high. Three subgroups showing continued increase through 1980 were apparel, paper, and rubber. Table 17 shows similar but generally larger declines for durable manufacturing. Only one subgroup, primary metal products, showed continued growth through 1980. The other eight subgroups showed declines that ranged from 3 percentage points in stone products to 21 percentage points in electrical machinery. But other large declines were experienced: 17 percentage points in furniture, 19 percentage points in fabricated metal products, and 12 percentage points in motor vehicles. The manufacture of instruments peaked in 1974 at 157 percent of Kentucky's 1970 relationship to the nation and declined to 87 percent in 1978, after which income data are not disclosed. (Employment data in Table 19 show that instruments increased in 1979 but declined again in 1980.)

In interpreting the relative index numbers in Tables 16-19, reference should also be made to Tables 4 and 5 that show relative importance of total manufacturing among the eight industry groups accounting for total Kentucky nonfarm wage and salary income and employment, and to Tables 10 and 11 that show the relative importance of each of the 19 subgroups in

total manufacturing. Manufacturing accounted for about 28 percent of total wage and salary income in the 1970-80 period. Within manufacturing, total nondurables accounted for about 41 percent and total durables for about 59 percent of total income in the period 1970-80. With nondurables, the three subgroups not experiencing relative income decline before 1980 had average 1970-80 percentages of total manufacturing income as follows: apparel, 5.8 percent; paper, 2.3 percent; and rubber, 3 percent. Similarly for durables, the one subgroup without decline before 1980 was primary metals, accounting for about 8.2 percent of income from total manufacturing. These comparisons show that the 15 manufacturing subgroups with declines before 1980 were the dominant part of the manufacturing sector of the Kentucky economy.

Summary and Conclusions

Per capita personal income in Kentucky reached 83 percent of the national average in 1976-77 and thereafter declined relative to the national average and also to the average of the 12 southeastern states. It is particularly important to note that several possible explanations of Kentucky's relative decline seem not to be valid. Kentucky's problem cannot be explained as merely a reflection of national problems because the declines in Kentucky values are shown as percentages of national values. Expressed in this manner, the results demonstrate that either the Kentucky values increased at a less-than-national rate or declined at a greater-than-national rate. Also, Kentucky's problem cannot be explained as merely an aspect of the business cycle. Kentucky's relative decline began approximately in 1978, well before the national recession that began in January 1980. Neither can Kentucky's problem be explained as a failure to recover from the 1974-75 national recession because Kentucky's personal income reached its highest percentage of the national average in 1976-77. One possible valid explanation is that Kentucky is suffering temporarily from an unfortunate combination of events, which include nationwide troubles related to automobiles and agriculture and localized problems related to coal. The last and most unfavorable possibility is that a fundamental change is occurring in the Kentucky economy.

This study attempts to identify the particular income sources whose declines contributed to Kentucky's overall decline in personal income relative to the nation. To determine whether the causes are temporary and transitory or possibly long range and fundamental is beyond the scope of this study. Income sources identified as contributing to Kentucky's relative income decline in the second half of the 1970 decade are summarized in Table 20. Also shown are the income sources that continued to grow through 1980.

The income sources that continued to grow through 1980 are: transfer

income; three nondurable manufacturing subgroups (apparel, paper, and rubber); and one durable manufacturing subgroup (primary metals). All of the other income sources declined. Kentucky, in the last half of the 1970 decade, suffered from relative decline in: agricultural income (both wage earners and proprietors); nonfarm proprietors' income; and investment income. The declines began generally in 1977 and 1978. Total nonfarm wage and salary income did not decline until 1980, but it plateaued in 1978 and 1979. Generally, employment declines were larger and occurred earlier than income declines, suggesting an emphasis on reductions of part-time and low wage workers.

An especially important finding of this study is the pervasive nature of Kentucky's relative income decline. All major income sources except transfer income showed relative decline, and the failure of transfer income to decline suggests a continued need to depend upon governmental income support programs. The declines beginning approximately in 1978 were compounded, of course, by the two national recessions beginning in January 1980 and July 1981. The income and employment declines in 1981-82 were deliberately excluded from this study to emphasize that some of Kentucky's current economic problems began several years before 1981. A follow-up article concerning employment declines in 1981 and 1982 is presented in the December 1982 issue of *Kentucky Economy: Review & Perspective*.

Footnote

¹Employment and income data used in this study are those available before the revisions published in late 1982. Source of data is U.S. Department of Commerce, Bureau of Economic Analysis. Assistance in planning and processing the data analysis was provided by Margaret O. Adams, Dee-Fu Chen, and Roy A. Sigafus.

TABLE 1

PERSONAL INCOME PER CAPITA, KENTUCKY AND
SOUTHEASTERN STATES AS PERCENTS OF
NATIONAL AVERAGE, 1940 TO 1980

Year	<u>Per Capita Personal Income</u>		
	<u>Percent of National Average</u>		Kentucky as Percent of Southeastern
	Kentucky	Southeastern	
1940	53%	57%	93%
1950	66	69	96
1960	72	74	97
1970	78	82	95
1971	79	83	95
1972	79	84	94
1973	80	85	94
1974	82	85	96
1975	81	85	95
1976	83	85	98
1977	83	85	98
1978	82	86	95
1979	82	85	96
1980	80	85	94

SOURCE: U.S. Department of Commerce, Bureau of Economic Analysis.

TABLE 2
MAJOR SOURCES OF PERSONAL INCOME, KENTUCKY AND U.S.,
1970 AND 1980

Income Source	<u>Percents of Totals</u>				<u>Ky. Percents as</u>	
	<u>Kentucky</u>		<u>United States</u>		<u>Percentages of</u>	
	1970	1980	1970	1980	U.S. Percents	1970 1980
Farm Wage and Salary Workers	0.6%	0.4%	0.5%	0.5%	120%	80%
Farm Proprietors	3.4	1.6	1.8	1.0	189	160
Transfers	10.5	14.8	10.0	13.9	105	106
Investments ¹	10.2	11.9	13.9	16.2	73	73
Nonfarm Proprietors	7.0	5.0	6.5	5.1	108	98
Nonfarm Wage and Salary Workers	<u>68.4</u>	<u>66.2</u>	<u>67.3</u>	<u>63.3</u>	102	105
Total ²	100.0%	100.0%	100.0%	100.0%		

¹ Investment income is from dividends, interest, and rents.

² Total may not add to 100 because of rounding.

TABLE 3
RELATIVE INDEXES OF INCOME GROWTH, SIX INCOME SOURCES,
KENTUCKY RELATIVE TO UNITED STATES, 1970 TO 1980

Year	Farm Incomes		Transfer Income	Investment Income*	Nonfarm Incomes	
	Wage and Salary Workers	Proprietors			Proprietors	Wage and Salary Workers
1970	100	100	100	100	100	100
1971	101	99	100	103	99	102
1972	100	102	100	104	103	102
1973	98	68	105	102	107	104
1974	113	99	106	111	106	106
1975	77	78	105	112	104	108
1976	96	115	105	114	104	110
1977	95	106	104	116	107	112
1978	105	96	103	109	103	112
1979	83	80	106	107	98	112
1980	83	87	107	106	98	109

*Investment income is from dividends, interest, and rents.

TABLE 4

**DISTRIBUTION OF INCOME AMONG EIGHT INDUSTRY GROUPS,
KENTUCKY AND UNITED STATES, 1970 AND 1980**

Industry Group	Group Income as Percent of Total Income				Ky. Percents as Percents of U.S. Percents	
	<u>Kentucky</u>		<u>United States</u>		<u>U.S. Percents</u>	
	1970	1980	1970	1980	1970	1980
Mining	3.9%	7.4%	1.1%	1.8%	355%	411%
Construction	6.7	5.7	6.2	5.7	108	100
Manufacturing	29.1	27.1	29.4	26.5	99	102
Transportation	7.8	7.9	7.5	7.6	104	104
Trade	15.5	15.4	16.7	17.0	93	91
Finance	3.7	4.1	5.1	5.9	73	69
Service	10.8	12.4	13.2	16.4	82	76
Government	22.4	19.7	20.5	18.9	109	104
Total*	100.0%	100.0%	100.0%	100.0%		

*Totals do not add to 100 because of rounding and omission of agricultural services.

TABLE 5

**DISTRIBUTION OF EMPLOYMENT AMONG EIGHT INDUSTRY GROUPS,
KENTUCKY AND UNITED STATES, 1970 AND 1980**

Industry Group	Group Employment as Percent of Total Employment				Ky. Percents as Percents of U.S. Percents	
	<u>Kentucky</u>		<u>United States</u>		<u>U.S. Percents</u>	
	1970	1980	1970	1980	1970	1980
Mining	2.8%	4.1%	0.8%	1.1%	350%	373%
Construction	5.0	4.5	4.6	4.6	109	98
Manufacturing	24.5	21.6	25.2	21.4	97	101
Transportation	5.9	5.5	5.8	5.4	102	102
Trade	18.6	20.4	19.8	21.4	94	95
Finance	3.5	4.2	4.8	5.5	73	76
Service	16.3	17.6	17.6	20.5	93	86
Government	23.3	21.7	21.0	19.7	111	110
Total*	100.0%	100.0%	100.0%	100.0%		

*Totals do not add to 100 because of rounding and omission of agricultural services.

TABLE 6

**AVERAGE ANNUAL INCOME PER WORKER, EIGHT INDUSTRY GROUPS,
KENTUCKY AND UNITED STATES, 1970 AND 1980**

Industry Group	Average Annual Income Per Worker					
	1970			1980		
	Kentucky	U.S.	Ky./U.S.	Kentucky	U.S.	Ky./U.S.
Mining	\$8,552	\$9,249	92.5%	\$23,133	\$22,897	101.0%
Construction	8,139	9,321	87.3	16,337	17,486	93.4
Manufacturing	7,210	8,149	88.5	16,280	17,374	93.7
Transportation	8,108	8,957	90.5	18,731	19,840	94.4
Trade	5,073	5,885	86.2	9,818	11,158	88.0
Finance	6,430	7,389	87.0	12,794	14,877	86.0
Service	4,021	5,221	77.0	9,100	11,294	80.6
Government	<u>5,845</u>	<u>6,801</u>	<u>85.9</u>	<u>11,743</u>	<u>13,439</u>	<u>87.4</u>
Total	\$6,079	\$6,963	87.3%	\$12,949	\$14,040	92.2%

TABLE 7

**AVERAGE ANNUAL EARNINGS INDEX, EIGHT INDUSTRY GROUPS
AS PERCENTS OF TOTAL, KENTUCKY AND UNITED STATES,
1970 AND 1980**

Industry Group	Average Annual Income Per Worker Group Average as Percent of Total				Ky. Percents as Percentages of U.S. Percents	
	Kentucky		United States		1970	1980
	1970	1980	1970	1980		
Mining*	141%	179%	133%	163%	106%	110%
Construction	134	126	134	125	100	101
Manufacturing	119	126	117	124	102	102
Transportation	134	145	129	141	104	103
Trade	83	76	85	79	98	96
Finance	106	99	106	106	100	93
Service	66	70	75	80	88	88
Government	<u>96</u>	<u>91</u>	<u>98</u>	<u>96</u>	98	85
Total	100%	100%	100%	100%		

*Average annual income of workers in Kentucky mining in 1970 (\$8,552, in Table 6) was 141 percent of the 1970 all-Kentucky-worker average annual income (\$6,079).

TABLE 8
INCOME GROWTH, EIGHT INDUSTRY GROUPS, KENTUCKY RELATIVE TO UNITED STATES, 1970 TO 1980
(Kentucky Indexes are Expressed as Percents of National Indexes; 1970 = 100)

Year	Total	Mining	Construction	Manufacturing	Transportation	Trade	Finance	Service	Government
1970	100%	100%	100%	100%	100%	100%	100%	100%	100%
1971	102	109	102	105	102	100	100	100	99
1972	102	113	102	109	101	99	97	98	97
1973	103	116	100	112	102	100	98	99	99
1974	105	136	94	114	104	101	101	99	100
1975	107	154	97	110	103	107	102	99	99
1976	108	147	102	113	105	107	104	100	101
1977	109	150*	104	116*	107	106	105	100	100
1978	110	143	114*	115	108	109*	105	100	100
1979	110*	139	111	114	108*	108	105*	100*	103*
1980	106	124	98	110	106	104	104	99	101

*Peak years in second half of 1970-80 decade.

TABLE 9
EMPLOYMENT GROWTH, EIGHT INDUSTRY GROUPS, KENTUCKY RELATIVE TO UNITED STATES, 1970 TO 1980
(Kentucky Indexes are Expressed as Percents of National Indexes, 1970 = 100)

Year	Total	Mining	Construction	Manufacturing	Transportation	Trade	Finance	Service	Government
1970	100%	100%	100%	100%	100%	100%	100%	100%	100%
1971	101	109	102	104	101	101	101	100	99
1972	100	111	102	107	100	99	99	99	96
1973	101	110	97	109	100	100	99	100	98
1974	103	124	93	111	101	101	102	100	100
1975	104	137	97	108	101	104	103	100	99
1976	105	133	103	110	101	105	105	100*	100
1977	105*	137*	103	111*	104	105	107*	99	99
1978	104	132	109*	109	104*	107*	106	98	98
1979	104	126	105	108	103	105	106	97	100*
1980	101	113	92	104	101	102	105	95	99

*Peak years in second half of 1970-80 decade.

TABLE 10

DISTRIBUTION OF MANUFACTURING INCOME AMONG 19 SUBGROUPS,
KENTUCKY AND UNITED STATES, 1970 AND 1980

Manufacturing Groups	Kentucky		United States		Ky. Percents as Percents of U.S. Percents	
	1970	1980	1970	1980	1970	1980
Nondurables	42.6%	40.2%	38.1%	35.7%	112%	113%
Food ¹	10.3	8.0	8.5	7.6	121	105
Textiles	1.7	1.5	3.6	2.9	47	52
Apparel	6.3	5.4	4.3	3.4	147	159
Paper	2.0	2.7	3.8	3.8	53	71
Printing	5.3	4.6	5.8	5.5	91	84
Chemicals	7.5	7.5	6.5	6.8	115	110
Petroleum Refining	0.6	2.0	1.3	1.5	46	133
Tobacco	5.3	4.3	0.4	0.4	1,325	1,075
Rubber	2.5	3.6	2.8	3.2	89	112
Leather	1.2	0.8	1.1	0.7	109	114
Durables	57.4	59.8	61.9	64.3	93	93
Lumber	2.5	2.2	2.4	2.7	104	81
Furniture	2.0	1.4	1.9	1.6	105	88
Primary Metals	7.1	9.4	7.6	7.3	93	129
Fabricated Metals	7.4	6.2	7.3	8.0	101	78
Machinery	13.1	16.1	11.6	13.7	113	118
Electrical Machinery	15.2	13.2	10.3	10.3	148	128
Motor Vehicles	4.4	5.3	5.1	5.2	86	102
Stone	2.8	3.3	3.3	3.3	85	100
Instruments	1.0	NA	2.6	3.6	38	—
Total Manufacturing²	100.0%	100.0%	100.0%	100.0%		

¹ Manufacture of food products accounted for 10.3 percent of manufacturing income in 1970 and 8.0 percent in 1980, for Kentucky. Similar amounts for the U.S. were 8.5 and 7.6 percent. The Kentucky amount in 1970 was 121 percent of the U.S. amount, indicating that Kentucky was above the national average in share of manufacturing income from food products. In 1980, however, this relative decreased to 105 percent, indicating that food product manufacturing declined in Kentucky relative to the United States.

² Parts do not sum to 100 percent because of rounding and omission of undisclosed groups.

TABLE 11

DISTRIBUTION OF MANUFACTURING EMPLOYMENT AMONG 19 SUBGROUPS,
KENTUCKY AND UNITED STATES, 1970 AND 1980

Manufacturing Groups	Kentucky		United States		Ky. Percents as Percents of U.S. Percents	
	1970	1980	1970	1980	1970	1980
Nondurables	46.0%	43.9%	42.0%	39.9%	110%	110%
Food	9.8	7.9	9.2	8.4	107	94
Textiles	2.4	2.4	5.1	4.2	47	57
Apparel	10.7	10.0	7.0	6.2	153	161
Paper	1.9	2.7	3.6	3.4	53	79
Printing	5.2	5.2	5.7	6.2	91	84
Chemicals	5.6	5.7	5.4	5.5	98	104
Petroleum Refining	0.5	1.3	1.0	1.0	50	130
Tobacco	5.4	3.7	0.4	0.3	1,350	1,233
Rubber	2.7	3.5	3.0	3.6	90	97
Leather	1.9	1.5	1.6	1.2	119	125
Durables	54.0	56.1	58.0	60.1	93	93
Lumber	3.6	3.4	3.0	3.4	120	100
Furniture	2.7	1.9	2.4	2.3	112	83
Primary Metals	5.6	6.7	6.8	5.7	82	118
Fabricated Metals	7.4	6.7	7.1	8.0	104	84
Machinery	10.6	14.1	10.2	12.3	104	115
Electrical Machinery	14.7	12.9	9.9	10.4	148	124
Motor Vehicles	3.4	3.6	4.2	3.9	81	92
Stone	2.8	3.4	3.3	3.3	85	103
Instruments	1.1	1.3	2.4	3.5	46	37
Total Manufacturing*	100.0%	100.0%	100.0%	100.0%		

*Parts do not sum to 100 percent because of rounding and omission of undisclosed groups.

TABLE 12
AVERAGE ANNUAL INCOME PER WORKER,
NONDURABLE AND DURABLE MANUFACTURING,
KENTUCKY AND UNITED STATES,
1970 AND 1980

Manufacturing Group	<u>1970</u>		Ky. as Percent of U.S.	<u>1980</u>		Ky. as Percent of U.S.
	Ky.	U.S.		Ky.	U.S.	
Nondurables	\$6,679	\$7,382	90.5%	\$14,920	\$15,574	95.8%
Durables	<u>7,661</u>	<u>8,705</u>	<u>88.0</u>	<u>17,344</u>	<u>18,567</u>	<u>93.4</u>
Total	\$7,210	\$8,149	88.5%	\$16,280	\$17,374	93.7%

TABLE 13
RELATIVE AVERAGE INCOMES IN NONDURABLE
AND DURABLE MANUFACTURING,
KENTUCKY AND UNITED STATES,
1970 AND 1980*

Manufacturing Group	<u>Kentucky</u>		<u>United States</u>	
	1970	1980	1970	1980
Nondurables	92.6%	90.6%	91.6%	89.6%
Durables	<u>106.3</u>	<u>106.8</u>	<u>106.5</u>	<u>106.9</u>
Total	100.0%	100.0%	100.0%	100.0%

*For Kentucky in 1970, average annual incomes of workers in nondurable manufacturing (\$6,679) were 92.6 percent of the total manufacturing average (\$7,210). The durable average (\$7,661) was 106.3 percent.

TABLE 14

**INCOME GROWTH, NONDURABLE AND DURABLE
MANUFACTURING, KENTUCKY RELATIVE TO
UNITED STATES, 1970 TO 1980**
(Kentucky Indexes as Percents of U.S. Indexes; 1970 = 100)

<u>Year</u>	<u>Total Manufacturing</u>	<u>Nondurable Manufacturing</u>	<u>Durable Manufacturing</u>
1970	100%	100%	100%
1971	105	102	107
1972	109	104	112
1973	112	106	116
1974	114	108	118
1975	110	109	111
1976	113	111	116
1977	116*	111	119.5*
1978	115	111	118
1979	114	112*	117
1980	110	111	111

*Peak years in second half of 1970-80 decade.

TABLE 15

**EMPLOYMENT GROWTH, NONDURABLE AND DURABLE
MANUFACTURING, KENTUCKY RELATIVE TO
UNITED STATES, 1970 TO 1980**
(Kentucky Indexes as Percents of U.S. Indexes; 1970 = 100)

<u>Year</u>	<u>Total Manufacturing</u>	<u>Nondurable Manufacturing</u>	<u>Durable Manufacturing</u>
1970	100%	100%	100%
1971	104	102	105
1972	107	104	110
1973	109	105	113
1974	111	107	115
1975	108	106	110
1976	110	107	113
1977	111*	107*	115*
1978	109	105	113
1979	108	105	111
1980	104	105	104

*Peak years in second half of 1970-80 decade.

TABLE 16
INCOME GROWTH, TEN NONDURABLE MANUFACTURING GROUPS,
KENTUCKY RELATIVE TO UNITED STATES, 1970 TO 1980
(Kentucky Indexes as Percents of U.S. Indexes; 1970 = 100)

Year	Nondurable Manufacturing Industries									
	Food	Textiles	Apparel	Paper	Printing	Chemicals	Petroleum Refining	Tobacco	Rubber	Leather
1970	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1971	99	104	102	110	99	98	182	99	116	106
1972	99	104	109	117	98	100	147	106	121	121
1973	99	106	110	122	102	100	139	110	118	126
1974	96	122	113	127	103	99	236	109	123	130
1975	99	126	112	147	99	101	243	106	108	127
1976	99	130	115	147	101	105	263	105*	108	131*
1977	100*	134*	116	149	99	108	286	104	110	116
1978	96	127	112	149	101	108*	280	104	129	117
1979	96	128	117	150	102*	106	296*	97	137	116
1980	96	124	119*	153*	101	104	293	90	138*	115

*Peak years in second half of 1970-80 decade.

TABLE 17
INCOME GROWTH, NINE DURABLE MANUFACTURING GROUPS,
KENTUCKY RELATIVE TO UNITED STATES, 1970 TO 1980
(Kentucky Indexes as Percents of U.S. Indexes; 1970 = 100)

Year	Durable Manufacturing Industries								
	Lumber	Furniture	Primary Metals	Fabricated Metals	Machinery	Electrical Machinery	Motor Vehicles	Stone	Instruments
1970	100%	100%	100%	100%	100%	100%	100%	100%	100%
1971	99	103	109	98	111	110	93	101	119
1972	95	102	110	103	114	121	103	102	132
1973	101	103	115	107	118	120	111	106	135
1974	101	97	117	106	120	114	133	108	155
1975	92	94	125	94	123	100	120	118	77
1976	92*	100	131	96	124*	109	119	118	98*
1977	84	103*	132	103*	121	117*	132	126	93
1978	82	95	135	100	119	112	141*	125	87
1979	86	90	143	95	118	109	131	133*	NA
1980	85	86	152*	84	115	96	129	130	NA

NA = Data not disclosed.

*Peak years in second half of 1970-80 decade.

TABLE 18
EMPLOYMENT GROWTH, TEN NONDURABLE MANUFACTURING GROUPS,
KENTUCKY RELATIVE TO UNITED STATES, 1970 TO 1980
(Kentucky Indexes as Percents of U.S. Indexes; 1970 = 100)

Year	Nondurable Manufacturing Industries									
	Food	Textiles	Apparel	Paper	Printing	Chemicals	Petroleum Refining	Tobacco	Rubber	Leather
1970	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1971	99	103	102	107	101	99	186	97	112	104
1972	98	103	105	116	98	102	166	102	115	117
1973	97	106	107	121	99	103	164	105	113	129
1974	95	119	109	124	99	102	229	107	112	132
1975	95	125	107	153	92	104	249	102	96	134
1976	96	128	106	157	93	109	265	103	96	127*
1977	96*	134*	109	158	93	111	296	105*	92	115
1978	92	130	104	157	93	111*	287	103	107	113
1979	90	127	107	157	96	108	292	102	113	115
1980	92	126	111*	159*	96*	105	296*	89	113*	113

*Peak years in second half of 1970-80 decade.

TABLE 19
EMPLOYMENT GROWTH, NINE DURABLE MANUFACTURING GROUPS,
KENTUCKY RELATIVE TO UNITED STATES, 1970 TO 1980
(Kentucky Indexes as Percents of U.S. Indexes; 1970 = 100)

Year	Lumber	Furniture	Durable Manufacturing Industries					Motor Vehicles	Stone	Instruments
			Primary Metals	Fabricated Metals	Machinery	Electrical Machinery				
1970	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1971	99	102	107	96	111	107	107	96	102	112
1972	96	101	112	101	112	116	116	96	105	125
1973	100	98	119	104	115	114	114	105	108	131
1974	103	93	122	104	116	112	112	127	109	153
1975	91	86	127	94	123	101	101	125	120	79
1976	94*	93	133	96	125*	106	106	121	120	97
1977	88	95*	135	102*	122	108*	108*	132	128	92
1978	87	88	134	99	121	102	102	139*	123	90
1979	88	85	141	92	118	98	98	137	130*	98*
1980	87	76	148*	84	115	87	87	119	126	84

*Peak years in second half of 1970-80 decade.

TABLE 20
SUMMARY OF INCOME CHANGES,
KENTUCKY RELATIVE TO UNITED STATES

	Table	1977	1978	1979	1980
<u>Declining Income Series:</u>					
Per Capita Personal Income	1		x	x	x
Farm Proprietors' Income	3	x	x	x	
Farm Workers' Income	3			x	x
Investment Income (dividends, interest, rents)	3		x	x	x
Nonfarm Proprietors' Income	3		x	x	x
Nonfarm Wage and Salary Income—Total	8				x
Mining	8		x	x	x
Construction	8			x	x
Transportation and Utilities	8				x
Wholesale and Retail Trade	8			x	x
Finance, Insurance, and Real Estate	8				x
Service	8				x
Government	8				x
Total Manufacturing	14		x	x	x
Nondurables—Total	14				x
Food	16		x	x	x
Textiles	16		x		x
Printing	16				x
Chemicals	16			x	x
Petroleum Refining	16				x
Tobacco	16	x	x	x	x
Leather	16	x		x	x
Durables—Total	14		x	x	x
Lumber	17	x	x		x
Furniture	17		x	x	x
Fabricated Metals	17		x	x	x
Machinery	17	x	x	x	x
Electrical Machinery	17		x	x	x
Motor Vehicles	17			x	x
Stone	17				x
Instruments	17	x	x		x
<u>Non-Declining Income Series:</u>					
Transfer Income	3				
Nondurable Manufacturing Subgroups:					
Apparel	16				
Paper	16				
Rubber	16				
Durable Manufacturing Subgroups:					
Primary Metals	17				

IV. THE SHORT-TERM OUTLOOK FOR KENTUCKY COAL

William H. Bowker*

Although 1981 was a fairly good year for the Kentucky coal industry, there were many indications by mid-1982 that the industry may be entering a prolonged soft-market period. This is somewhat paradoxical since strong production and severance tax revenues early in 1982 may be sufficient to carry the entire year substantially into the plus column in both of these measures of industry health.

In 1981, Kentucky coal production was 157.6 million tons, an increase of 5 percent over the 1980 figure of 150.1 million tons. By comparison, the 1980 production level of 150.1 million tons was only some 300,000 tons, or 0.2 percent, greater than production in 1979. In December 1981, spot steam coal prices reached the level of \$29 for 0.76 to 1.5 percent sulfur, 12,000 Btu per pound eastern Kentucky coal and \$26 for 1.6 to 3.0 percent sulfur, 11,500 Btu per pound western Kentucky coal. Also, in December 1981, mining employment reached the yearly high level of 54,300, and unemployment was less than 5 percent. Severance tax receipts in 1981 reached the record level of \$210.7 million. Through June 1982, both production and severance tax collections were running substantially ahead of those in the corresponding period in 1981. Toward the end of the period, however, unemployment began to increase dramatically, reaching 16 percent in July 1982. Reports of mine closings, layoffs, and shortened work weeks were widespread. Prices had fallen dramatically. In late August, eastern Kentucky coal having a sulfur content of 0.76 to 1.5 percent and 12,000 Btu per pound was selling for about \$22 per ton, and western Kentucky coal having sulfur of 1.6 to 3.0 percent and 11,500 Btu per pound was selling for about \$23 per ton. These prices reflect decreases of 24.1 percent and 11.5 percent, respectively, since December 1981. Coal operators were reporting that the short-term (spot) market had virtually disappeared. When coal prices drop so steeply, often the only activity in the spot market is the search for "distress coal," which, as the name implies is coal that a producer might be willing to sell just to maintain a cash flow and stay in business. In August, there were numerous reports of as little as \$16 to \$18 per ton being offered for high-

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quality distress coal. Finally, stocks of coal at producers and distributors increased nationwide by 9.6 million tons, or 40 percent, in the first quarter of 1982 over the first quarter of 1981. Stocks in coal-production District 8 (eastern Kentucky and parts of West Virginia, Virginia, and Tennessee) had increased by 3.9 million tons, or 81.6 percent, in that period. In District 9 (western Kentucky), coal stocks at producers and distributors had increased by 88,000 tons, or 6.4 percent.

Why the dramatic weakening of the Kentucky coal market, and what does this portend for 1983? Answers to both questions lie in the poor domestic and international economic conditions and in environmental regulations which have decreased the marketability of a substantial part of Kentucky coal, especially in the western Kentucky coalfield.

It is difficult to demonstrate statistically a direct and strong correlation between economic activity and demand for coal. One intuitively knows that, as factories cut back or shut down and as consumers lose income from unemployment, the reduced demand for electricity will reduce the demand for coal. Also, it should be clear that the demand for coal in the steel industry and other manufacturing concerns will decrease in poor economic times.

As will be discussed later, coal demand in the industrial and commercial sectors does track the level of economic activity reasonably well. However, in the electric utility sector, which accounts for over 80 percent of all domestic coal use, it is much more difficult to demonstrate such a correlation. The reasons are several. Utility coal use and stockpiling are seasonal and may be impacted further by abnormally hot or cold weather. Coal miners' strikes and the threat of strikes cause substantial variations in stockpiling coal. Stock piles tend to peak every three years to coincide with the negotiation of contracts between the United Mine Workers and coal producers. Variations in the prices of petroleum and natural gas cause more or less activity in converting from these fuels to coal, as do changes in governmental policies concerning conversion. The conversion of several existing generating plants to coal use may, in turn, mask the decrease in coal demand resulting from a weak economy. Environmental policies, particularly those concerning air quality, may greatly alter the market for particular qualities of coal, as exemplified by the drastic decrease in demand in recent years for higher-sulfur coals from western Kentucky and the increased demand for lower-sulfur coals from eastern Kentucky and the western United States.

In the international steam coal market, factors such as the relative political stability of coal-producing countries, environmental policies, and economic conditions in coal-buying countries have substantial impact upon international demand for United States coal. For example, political turmoil in Poland and racial policies in South Africa have in recent years created new opportunities for the United States as a more stable and politically acceptable source of coal. Middle Eastern instability and rapid increases in oil prices,

largely caused by the Arab OPEC nations, have created strong interest in Europe in converting electric utilities to coal. European environmental policies have largely excluded higher-sulfur coals from that export market. Worldwide recession has dampened demand for coal in many countries.

The multiplicity of market-affecting factors listed above, and their interactions, demonstrate the problems of the analyst in predicting the coal market, especially in the short-term. They also serve to explain the difficulties coal producers and marketers have in reading the market signs and adjusting to them. These problems, combined with the substantial time and investment in capital and labor involved in entering into, increasing, or decreasing coal production, also help explain the present problems of the Kentucky coal industry and provide a background for forecasting the condition of the industry over the coming year.

The present situation seems to be an unusually severe manifestation of the supply and demand imbalances which are typical in the coal market. Figure 1 illustrates both the recurring imbalances and the severity of the present imbalance. Following the 1981 UMWA strike, production increased dramatically, reaching a twenty-seven month high in October 1981. Expectations of strong and continuing demand for coal were high. Utilities would have to rebuild stocks, drawn down during the strike, in preparation for peak use during the winter months. The export boom was at its peak. Exports in the third quarter of 1981 were over 30 percent greater than in the same quarter of 1980, which was itself a very good quarter. Steel industry demand for coal was rebounding from a setback in the second quarter of 1981 which had followed substantial growth in the preceding three quarters. Other industrial use had trended upward for about a year and, in the third quarter of 1981, had reached a level 27 percent greater than the corresponding period in 1980.

Unfortunately, none of the expectations were fulfilled. Poor economic conditions and energy conservation depressed the utility coal market substantially. Table 1 shows the drastic decrease in consumption of bituminous coal (the type produced in Kentucky) by electric utilities in the first five months of 1982. Comparing the five-month period in 1981 with the same five months in 1980, it can be seen that each month in 1981 registered growth over the same months in 1980. The total increase for the five months of 1981 over 1980 was 6 percent. In 1982, the growth stopped. Three of the five months in 1982 showed less consumption of bituminous coal than the corresponding months in 1981. January and May 1982, showed only a 3.6 percent and 1.1 percent increase over the same months in 1981, whereas in 1981, these two months also showed the greatest increases over 1980 among the five months, but did so by 8.9 percent and 8.6 percent, respectively. For the five months total in 1982, there was virtually no increase in bituminous coal consumption to produce electricity. Because of decreased coal consumption, utilities rebuilt stocks more slowly than had been anticipated.

Table 2 illustrates that the decrease in bituminous coal consumption to produce electricity is due both to economic downturn and to conservation and also illustrates that the relative proportion to which each has contributed to the decrease is uncertain. It should also be noted that about one-half of the increase from 1978 through 1981 in the proportion of electricity generated by coal is due to increased use of lignite and anthracite, especially the former. Thus, for Kentucky, in which only bituminous coal is produced, the increase in coal use by electric utilities is less meaningful than might have been presumed.

Steel industry use of coal decreased by more than 20 percent from the third quarter of 1981 through the first quarter of 1982. Compared to steel industry use of coal in the first quarter of 1981, the decrease was over 30 percent. Other industrial use of coal increased by 10 percent between the third quarter of 1981 and the first quarter of 1982. However, the level of use in the first quarter of 1982 was still below that in the corresponding period in 1981.

The most drastic softening in the coal market was in the export steam coal market. Exports, especially of steam coal, were the hottest item in the United States coal market in 1980 and 1981. Exports in 1980 were almost 40 percent greater than in 1979. In 1981, exports increased by another 23 percent. Even more importantly, the export market had become an increasingly significant part of the total coal market, taking 8.5 percent of coal production in 1979, 11.1 percent in 1980, and 13.7 percent in 1981.

The export boom came as the domestic economy was weakening, when western United States coal was beginning to make significant inroads into traditional eastern coal producers' markets, when nuclear energy was receiving increasing emphasis in the federal government at the expense of coal, and when the Reagan administration was making clear its intention of supporting the development of synthetic fuels as little as possible.

In the international arena, metallurgical coal demand was fairly strong. The demand for steam coal was fueled by a series of fortuitous events. European governments began to switch their electric utility industries from oil to coal. Political unrest in Poland, and labor problems in Australia created strong interest in the United States as a stable source of high-quality steam coal. Expansions and new construction at United States ports, especially on the Eastern and Southern coasts, were announced in rapid succession.

The decrease in the export market in 1982 was caused by three major factors. First, the worldwide recession dampened the demand for electricity. Second, Poland, South Africa, and Australia aggressively sought to reclaim the export coal market that they had lost in the past two years. Third, coal marketers in Europe had overbought during 1981 and found themselves in 1982 with huge stockpiles of coal at European ports.

In terms of actual shipments, the impact of the softening of the export

market was just beginning to be felt in the mid-1982. Although shipments were still running well ahead of the 1981 level in the first four months of 1982, the downturn in May of 6.4 percent in steam coal and nearly 7 percent in metallurgical coal and the widespread reports of huge stockpiles at foreign ports, deferred orders, contract price renegotiations, and a dramatic decrease in scheduled vessel arrivals in U.S. ports led most analysts to conclude that demand for the remainder of 1982 and at least a substantial part of 1983 would be very sluggish and that prices would remain under heavy pressure. In short, the export market had ceased to grow in mid-1982; and deliveries for the coming year or so would consist almost entirely of deliveries on contract. Foreign buyers, obligated to take delivery, were attempting in mid-1982 to slow the pace of deliveries and to obtain lower prices than had been contracted for.

The Kentucky coal industry, in 1982, has felt the impact of all the market problems described above. The lagging of production behind changes in consumption along with the promise of the export market well into 1982, resulted in the continuation of a high level of production until about mid-1982, when mine closings, cutbacks, and falling prices became widespread.

The problems have been exacerbated by the continuing decline of the coal industry in western Kentucky. Since 1975, production in western Kentucky has decreased by fifteen million tons, or over 27 percent. Since western Kentucky has participated only slightly in the export market, and produces no metallurgical coal, the drastic decrease is due almost entirely to the changing utility market. Under present environmental regulations, many existing power plants burning high-sulfur coal have been required to reduce sulfur dioxide emissions to levels defined by State Implementation Plans to improve ambient air quality to the acceptable standards. Most of these power plants have switched to lower-sulfur coals in order to meet emission limitations. Thus, the western Kentucky coal market is being impacted by both sluggish utility use of coal and the erosion of the utility market due to environmental regulations.

The outlook for Kentucky coal for the balance of 1982 and for 1983 depends upon three things: (a) the timing, and extent, of economic recovery, (b) the coal-fired generating capacity changes in Kentucky's market area, and (c) the recovery of the export market.

It is unlikely that production in 1983 will be significantly greater than in 1982 or as great as in 1981. Assuming that the present indicators of recovery materialize into real recovery by the end of 1982 and that the recovery continues throughout 1983, it would seem likely that several months would elapse before coal demand in the steel, other industrial, and commercial sectors would return to 1981 levels. By the end of 1983, total consumption for that year could equal or even surpass the 1981 level, but the poor market in mid-1982 indicates that a very strong pace of economic recovery would be

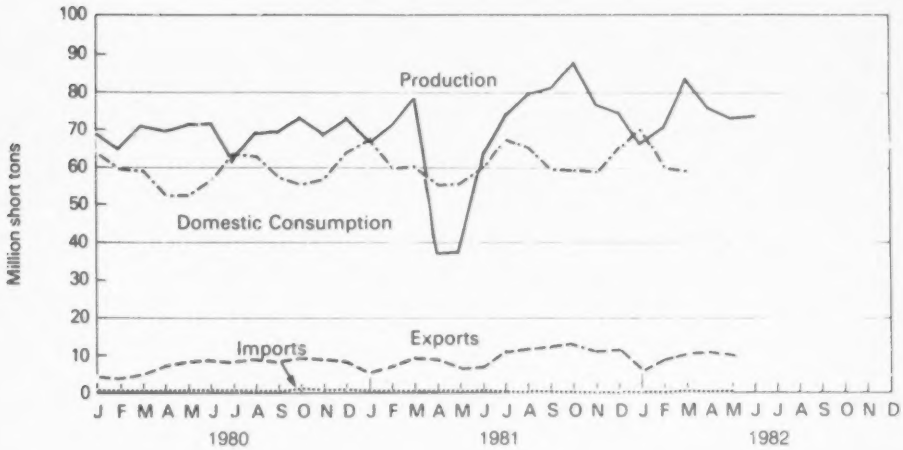
necessary. Coal consumption by utilities is not likely to increase significantly. Because of the length of time that a strong economic recovery will likely take, and because of increasingly successful energy conservation efforts, increases in coal consumption will come almost entirely from the addition of new coal-fired generating capacity or the replacement of oil and gas-fired plants by plants using coal. Even if there is no slippage from projected additions in 1983, and assuming that Kentucky retains its historical market share in that area, new demand for Kentucky coal from such plants in Kentucky's market area will be no more than 3 percent, or about 3.5 million tons over 1981 consumption of Kentucky coal by electric utilities. Since slippage is more the norm, especially during poor economic times, the increases are likely to be in the neighborhood of 1.5 to 2.0 percent and 1.7 to 2.2 million tons. It must, however, be borne in mind that, when dealing with such a short-term forecast as one year, the gain or loss of even one large contract can alter the percentage of change substantially. Also, there is little indication that the steel industry will regain strength before late in 1983.

The return of growth in the export market in 1983 depends upon the health of the worldwide steel industry; the strength of other countries' economies, especially in Europe, which will affect electricity demand and the pace of conversion to coal; and the speed with which the present coal glut in Europe works through. Most analysts of the international coal market and government officials in other countries see little reason for optimism concerning any of these developments, at least until well into the second half of 1983. The outlook is for slow economic growth in Europe and slower growth than anticipated in the Pacific Rim market. Inventories at utilities, steel facilities, and ports, created by the combination of strong buying in 1981 and early 1982 and of economic slowdown, must be normalized before the export market can recover to or near the 1981 level. This inventory normalization will continue until well into 1983, perhaps close to year's end. Also, Poland is aggressively re-entering the European coal market and may be a strong factor in 1983.

The typical lag of several months of production behind demand may be more extended in 1983. Having first slowed production, cut workdays, and increased stockpiles at the mines, and finally having had to lay off workers and close operations, the industry may well be even slower to respond to positive market signals than usual. Some companies are reporting their intention of not restoring production in anticipation of improved markets. Rather, they intend to hold off restoring production until firm orders are in hand. Thus, if the recovery of demand does not materialize strongly until late 1983, the recovery of production and employment may not materialize until even later.

FIGURE 1

BITUMINOUS COAL, LIGNITE, AND ANTHRACITE PRODUCTION,
CONSUMPTION, IMPORTS, AND EXPORTS,
UNITED STATES, 1980-82



SOURCE: U.S. Energy Information Administration, *Monthly Energy Review*, August 1982, p. 61.

TABLE 1

PERCENTAGE CHANGES IN CONSUMPTION OF
BITUMINOUS COAL BY ELECTRIC
UTILITIES IN THE U.S.

	1981 to 1982	1980 to 1981
January	3.6%	8.9%
February	-0.2	1.4
March	-3.1	4.4
April	-1.6	6.8
May	<u>1.1</u>	<u>8.6</u>
Total	0.4%	6.0%

SOURCE: Derived from data in U.S. Energy Information Administration, *Monthly Energy Review*, August 1982.

TABLE 2
PERCENTAGE CHANGES IN TOTAL
GENERATION OF ELECTRICITY AND
PERCENTAGE OF ELECTRICITY GENERATED
WITH COAL AS THE PRIMARY FUEL,
1975-82

	Percent Change in Generation	Percent of Electricity from Coal
1975	—	44.5%
1976	6.3%	46.3
1977	4.3	46.4
1978	3.9	44.2
1979	1.9	47.8
1980	1.7	50.8
1981	0.4	52.4
1982*	0.6	52.8

*January to May 1982.

SOURCE: Derived from data in U.S. Energy Information Administration, *Monthly Energy Review*, August 1982.

V. THE AGRICULTURAL OUTLOOK

Larry D. Jones*

The agricultural economies of Kentucky and the U.S. have been mirroring developments in the U.S. economy. While the U.S. economy has been experiencing slower economic growth since mid-1979, agriculture has been in a period of cost-price squeeze with U.S. realized net farm income declining from \$26.7 billion to \$19.6 billion in 1981 (Table 1). Consequently, agriculture and the industries supplying inputs to agriculture such as fertilizer, chemicals, and farm machinery have come under tremendous financial strain which has been exacerbated by historically high interest rates.

Two recent statistics indicate the farm economy's sensitivity to the weakness in the U.S. economy. First, farmland values likely declined in 1982 following increases of 16 percent and 19 percent, respectively, in 1980 and 1981. U.S. Department of Agriculture estimates peg the 1982 decline at 1 percent, but private analysts feel the decline will be much larger. Already several areas of the state report land values off as much as 25 percent over year-earlier levels. Second, per capita consumption of animal products likely declined about 2 percent in 1982 to the lowest level since 1939.

The weakened U.S. economy during the past two years affected farmers more quickly and directly than during past economic downturns. With farmers more dependent on credit, rising interest rates immediately were reflected in lower farm income. The higher interest rates also resulted in a stronger U.S. dollar (relative to other currencies), thus weakening export demand. This is significant considering that production from one acre in three is exported from the U.S.

Recent Trends in Kentucky

Kentucky agriculture has not escaped these macro developments, although the diversity of agriculture in the state and the large number of part-time operators with other income sources has helped somewhat to temper the impact of the cost-price squeeze. Total cash receipts from farm marketings in the Commonwealth in 1981 totaled \$2.78 billion, or 1.1 percent over 1980

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levels. The cost of production inputs, however, increased about 7.8 percent during the same period based on U.S. Department of Agriculture estimates. Producers in Kentucky responded to higher input prices by reducing input use, as total production expenses declined from \$2.3 billion in 1980 to \$2.1 billion in 1981.

The Year Ahead

Agriculture during 1983 will likely be characterized by a continuation of the cost-price squeeze situation. Some commodity sectors such as livestock and tobacco will perform relatively well as prices strengthen over 1982 levels. However, crop prices will continue at relatively low levels in response to record crops here and abroad during the past several years. For many row crop producers, prices will not cover costs of production, keeping grain producers in a tight financial situation. Increases in number of bankruptcies will accelerate as the year unfolds, placing added financial pressure on the input firms that have extended credit to these producers.

Four major forces will dictate the performance of agriculture during 1983.

1. *The vitality of the U.S. economy.* Real GNP is expected to grow about 3.2 percent during 1983, a very modest rebound in activity as compared to prior economic recoveries.¹ Consequently, the domestic demand for farm products, particularly consumer demand for meat, will be somewhat weaker than experienced during prior economic recoveries.

2. *Interest rates.* The prime loan rate is projected to remain at a high rate by historical standards. Farmers' credit costs now exceed their cost of purchasing fuel. These relatively high rates simply add to farmers' cost of doing business. In addition, relatively high interest rates imply a stronger U.S. dollar. The latter in turn makes U.S. exports relatively more expensive, putting a damper on the growth in exports.

3. *Food surpluses.* Large crop supplies from past record harvests will keep the crops sector under downward price pressure during 1982. Livestock producers, however, benefit by having access to cheap feed.

4. *Government programs.* Acreage reduction and paid diversion programs will be in effect for feed grains in 1983. However, the level of farmer participation will not be known until the first half of 1983. Farmer participation (or lack thereof) will help determine how quickly the chronic crop surpluses can be worked down and prices and income can be strengthened.

Corn. The U.S. corn market was dominated in 1982 by the prospect of a second 8 billion bushel plus harvest in a row. Consequently, corn prices remained under downward pressure as weakened domestic and foreign demand meant that production of these magnitudes could not be utilized. Consequently, crop year-ending carryover stocks (year ending September 30, 1983) will likely exceed 2.7 billion bushels, an extremely high carryover by

historical standards. Short of major U.S. production shortfalls during the 1983 growing season, there is little likelihood that corn prices will strengthen. Significant factors to monitor as 1983 unfolds includes: (a) the nature of the government feed grain program, and farmer participation in the program, (b) the strength of the world economic recovery, (c) the level of interest rates as it relates to the value of the dollar and exports, and (d) the magnitude of the increase in livestock numbers, particularly hogs.

Soybeans. The U.S. soybean market also was dominated by the prospects of an all-time record crop, with fall 1982 production close to 2.3 billion bushels. Production at this level suggests carryover by the fall of 1983 near 400 million bushels, again an all-time high figure. Consequently, prices remained under downward pressure during 1982 with little prospect of prices strengthening appreciably during 1983.

The soybean situation, however, has an outside opportunity for more rapid recovery in prices during the latter half of 1983 if: (a) lower interest rates develop, thereby weakening the value of the U.S. dollar, (b) the world economies strengthen, and (c) the Brazil and Argentine oilseed crops are less than 20 million metric tons. However, the greatest probability is for relatively low soybean prices to continue during 1983.

Wheat. The 1982 U.S. wheat harvest will be the second largest harvest ever, only slightly below last year's record level. When combined with carrying stocks, this will produce a record total U.S. wheat supply. World wheat production is forecast to be almost 3 million metric tons greater than expected utilization, causing world stocks to increase to 19.4 percent of total world use. With all the major exporting countries, except Australia, having record or near record production, and the major importing countries having production problems and/or projected increases in their imports, world wheat trade should see a record-breaking year.

U.S. wheat prices in 1983 will depend heavily on Soviet import decisions and on farmer participation in the 1983 wheat program. Soviet imports could be much less than currently expected by the USDA, causing a further buildup in U.S. carryover stocks and prices below those required for loan redemption. If U.S. exports reach or exceed currently projected levels and a significant reduction in 1982 winter wheat seedings is achieved by government programs, wheat prices would approach the upper price limit currently forecast by the USDA of \$3.65 per bushel. Prices above this level would require all of the above events and some degree of production difficulty with the 1983 wheat crop.

Tobacco. An estimated 236,400 acres of all tobacco was harvested in 1982, unchanged from 1981 levels. Burley acres harvested likely totaled 218,000 acres in 1982, the same acreage as in 1981. Production in the burley belt for 1982 is estimated at a record 775 million pounds, surpassing the previous record established in 1963. Kentucky's burley tobacco production

was estimated at 527.8 million pounds, or 67 percent of the total. Expected farm prices for burley for 1982 have been lowered as a result of the announced 6 cents per pound cut in the federal price support level. The announced federal price support of \$1.751 per pound is still 10.7 percent above the 1981 level. However, the 6 cent cut in the federal price support probably cost Kentucky burley producers between 25 and 30 million dollars in revenue.

Cattle. Demand factors dominated the cattle markets during 1982 as cattle supplies changed little from 1981 levels, yet prices advanced about \$15 per hundredweight. Particularly significant were the slow growth in consumer disposable income and rising unemployment.

The basic questions concerning cattle prices during 1983 relate to the same factors that dominated cattle markets in 1982: trends in supplies, the strength of the economy, and changes in the spreads between retail beef and live cattle prices. Feeder calves, an important sector to Kentucky, will in turn be dominated by expectations of fat cattle prices, interest rates, availability of credit, and grain prices.

Cattle prices are expected to advance in 1983 over 1982 levels. However, some late 1983 summer weakness in prices is expected before a fall recovery. Both the cow/calf operator and feedlot producer should maintain positive profit margins for the year.

Hogs. Kentucky hog producers were faced with prices at the start of 1982 that were, at best, near break-even levels. By midyear, however, the prospects of dwindling pork supplies as well as falling farm-retail price spreads resulted in prices advancing more than \$15 per hundredweight.

Prospects for 1983 are mixed. Supplies will be relatively tight during the first half of the year, but an upward price spiral will be tempered by the probability of expanding farm-retail price spreads. Signs are evident, moreover, that a significant increase in hog numbers will likely be coming to market during the second half of 1983. Consequently, price declines of \$15-\$20 per hundredweight could occur by year-end. For the year, hog producers will retain positive margins, although declining as the year progresses.

Dairy. Dairy prices continue to be at the discretion of the U.S. Congress. Milk supplies continue to be abundant with the federal government buying and storing milk products to maintain the established support price. Several bills pertaining to changes in the dairy program were introduced in the Congress during 1982. Passage of new legislation would alter the outlook for dairy prices and income to dairy farmers.

Summary

Key indicators of the farm sector suggest that 1983 will likely be the fourth straight year of depressed financial conditions for many farmers. Live-stock receipts will likely increase, but crop receipts will remain low, leading

to lower overall cash receipts from farm marketings. Kentucky producers will likely be somewhat better off than those in many states because of their tobacco and livestock enterprises.

Footnote

¹Wharton Econometric Forecasting Associates, "Quarterly Outlook Model," November 1982, p. i.

TABLE 1

FARM INCOME SITUATION, UNITED STATES, 1979-83
(In Billions of Dollars)

	1979	1980	1981	1982 ¹	1983 ²
Cash Receipts					
Livestock	\$ 63.1	\$ 71.7	\$ 75.0	\$ 71.4	\$ 77.0
Crops	68.6	67.8	68.5	70.2	72.3
Total	131.7	139.5	143.5	141.6	149.3
Other Income	19.6	11.1	23.3	20.2	22.8
Gross Farm Income	151.3	150.6	166.8	161.8	172.1
Production Expenses	119.0	130.5	141.6	157.4	154.3
Realized Net Farm Income ¹	26.7	24.4	19.6	15.6	17.8

¹ Before inventory adjustment.

² Forecasted by the author.

SOURCE: *Economic Indicators of the Farm Sector: Income and Balance Sheet Statistics, 1981*, National Economics Division, Economic Research Service, U.S. Department of Agriculture, ECIFS1-1, Washington, D.C., August 1982, pp. 56, 77-78; Kentucky Economic Information System.

TABLE 2

CASH RECEIPTS FROM FARM MARKETING, KENTUCKY, 1980-81
(In Millions of Dollars)

Commodity	1980	1981*	1981 as Percent of 1980	1981 Receipts as Percent of Total Receipts
Livestock	\$1,349	\$1,359	100.7%	48.8%
Cattle and Calves	546	439	80.4	15.8
Horses	320	423	132.2	15.2
Dairy Products	275	300	109.1	10.8
Hogs	180	166	92.2	6.0
Other	28	31	110.7	1.0
Crops	1,402	1,424	101.6	51.2
Tobacco	675	766	113.5	27.5
Soybeans	384	260	67.7	9.3
Corn	278	220	79.1	7.9
Wheat	44	92	209.1	3.3
Other	21	86	409.5	3.2
Total	\$2,751	\$2,782	101.1%	100.0%

*Preliminary

SOURCE: Kentucky Department of Agriculture, *Kentucky Agricultural Statistics, 1981-1982* (Louisville, Ky.: Kentucky Crop and Livestock Reporting Service, September 1982), p. 85; Kentucky Economic Information System.

VI. THE SHORT TERM OUTLOOK FOR KENTUCKY RESIDENTIAL CONSTRUCTION

L. Randolph McGee

Residential construction reached an all-time high in the nation and in Kentucky during the year 1972. Also, the period 1970-80 was the strongest decade of housing production in this nation's history. However, construction of new housing started a decline in the late 1970s, annual production continued to decline through 1981, and the annual production of houses in 1982 is expected to be the lowest since World War II.

With this long and persistent downward movement in the background, what can we expect of residential construction activity over the short term? This chapter examines some key factors affecting residential construction and assesses the outlook for this type activity in Kentucky through the end of 1983.

The Recent Recession in Residential Construction

The recent decline in residential construction activity is illustrated in Figure 1. This figure shows an index of authorized residential construction for the United States and for Kentucky over the period 1972 through 1981. Although residential construction generally followed the same pattern in Kentucky and the nation, there were two notable differences. First, the downturn occurred earlier in Kentucky. The indexes in Figure 1 were constructed from annual data and it is not possible to identify the exact point of the downturn from the chart. However, examination of the monthly permits issued (seasonally adjusted) shows that the peak of this series occurred about a year earlier in Kentucky than in the nation. A second difference is the severity of the decline in residential construction, which was sharper in Kentucky than in the nation.

Nationally, the long downswing in residential construction ended in October 1981. Although generally increasing since October 1981, housing construction has remained sluggish. As a result the annual production of housing in 1982 is expected to be the lowest in the post-World War II period.

Building permits issued for residential construction suggest that the

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downswing ended in Kentucky at about the same time as in the nation as a whole. (Seasonally adjusted residential building permits for Kentucky are presented in Table 1.) Like its national counterpart, Kentucky's residential construction has generally increased since late 1981 but the 1982 annual production will most likely be below the 1981 level.

Causes of the Residential Recession

The recent recession in residential construction was caused primarily by the rapid rise in the cost of homeownership. Because of the rise in home prices and interest rates, many potential homeowners during this period could not afford to purchase a house. During the latter portion of the downswing the high cost of homeownership was accompanied by a weak economy characterized by unusually high unemployment rates. Combined, these factors created an affordability problem in housing markets.

The data in Table 2 illustrate the rapid rise in mortgage interest rates since 1978. The average FHA interest rate ceiling for the year 1981 was 6 percentage points above the average for 1978. Moreover, the FHA interest rate ceiling actually peaked at 17.5 percent in late 1981. Effective interest rates on new homes showed a rise very similar to the FHA interest rate ceilings. The last column in Table 2 shows the average rates for all lenders for 25-year mortgage loans with an 80 percent loan-to-price ratio. These rates increased even faster than those for new home loans.

Mortgage interest rates normally are lower in Kentucky than the national average; nevertheless, the rapid rise in interest rates had a devastating impact on Kentucky's residential construction. As noted earlier, the decline in Kentucky has been more severe than in the nation as a whole.

The impact of the high mortgage rates on the cost of homeownership can be illustrated by use of a simple example. Assume a \$40,000 mortgage has a 25-year maturity, and the mortgage interest rate is fixed. If the mortgage interest rate is 9 percent, the monthly payments of principal and interest will be \$336.00; if the rate is 16 percent the monthly payments will be \$543.20.

The rapid rise in mortgage interest rates was accompanied by inflation in the price of housing. Table 3 contains some annual rates of increase in the Consumer Price Index for Urban Wage Earners and Clerical Workers (CPI-W) and selected components of the index that are related to homeownership. The first column shows the annual rates of increase in the prices of all items, the second column is the homeownership component of the CPI-W, and the last two columns are subgroups within the homeownership component. The information in the table illustrates a few very important points. First, the rate of inflation in homeownership was much greater than for all items. Second, the annual increase in the cost of purchasing a home (Column 3) increased

faster than the rate for all items during the period 1978 through 1980 but declined considerably in 1981. The index for the first six months of 1982 indicates a renewed inflation in the price of housing; however, this should be viewed with caution because of other indications that housing prices have been relatively flat over this period. A third point of interest is the rate of change in the finance, taxes, and insurance component of homeownership in the CPI-W. These costs increased much faster than other costs of homeownership, and the principal cause was the rising interest cost. A final observation can be made with an optimistic note: There appears to be a lessening in the rate of inflation in general and specifically in the cost of homeownership.

The affordability problem has slowed the rate of household formation, which was important to the growth of housing construction in the 1970s. Changes in life styles coupled with population growth in the household formation age group generated an increase in households in the 1970s about 50 percent greater than in the previous decade. Of particular note were the sharp increases in the proportion of single person and single parent households. Some of the trends emerging in the 1970s were expected to continue into the 1980s. However, economic forces have altered these trends; while the desire may still be there, the high cost of homeownership has discouraged individuals from leaving the family unit early to form a new household.

The Recent Versus Previous Residential Downswings

Many differences could be noted distinguishing the present from previous residential downswings. However, a few distinguishing factors will serve to note that our route to recovery will differ from the pattern of previous recoveries. The major factors accounting for the differences are related to changes in the mortgage markets.

In earlier housing recessions, the main cause could be traced to the lack of available funds in the mortgage markets. The general economic mechanism in this country generates cyclical fluctuations. During the advanced periods of cyclical expansion, pressures build up that cause a rise in the interest rates. Regulation Q limited the amount banks and thrift institutions could pay on savings deposits. When the market rates of interest rose above what could be paid to depositors under Regulation Q, the banks and thrift institutions suffered from a decline in the rate of savings inflows. (This is called disintermediation.) Commercial banks, as diversified lenders, usually switched from mortgages to more profitable type loans. Thrift institutions received most of their funds from savings deposits and used those funds primarily for residential mortgages. As the major source of mortgage loans, the decline in the inflow of savings to the thrift institutions directly affected the availability of funds for residential mortgage loans. The shortage of funds for housing loans

caused the mortgage interest rate to rise. The higher rates caused some buyers to defer their home purchase but the primary cause of downswings in housing was usually attributed to the shortage of funds available to the residential sector rather than the cost of those funds.

While some elements of the above process are still present, the most recent residential recession presents a different pattern of causation. During this downturn, the principal problem has been affordability, not availability. Regulatory changes have permitted financial institutions to be more competitive for funds in the money markets. This allowed thrift institutions in particular to attract funds; however, the cost of those funds has created other problems. As Table 4 shows, the average cost of funds for all FSLIC-insured savings and loan associations in the Federal Home Loan Bank Board's Cincinnati District has risen faster than the yield on mortgages held. In 1978, the interest return on mortgages held by savings and loans was almost 2 percentage points above the effective interest (or dividend) rate paid on funds. By 1981 the cost of the funds exceeded the return on mortgages held. Despite the high rates on new mortgage loans, the low-interest mortgages embedded in the associations' portfolios held down average interest returns on mortgages.

This problem can be contrasted with the experience during the housing recession in the early 1970s. Data at the bottom of Table 4 show that changes in the rates were much less dramatic in the earlier recession. The effective rates paid by the associations increased by only 0.82 percentage points from 1972 to 1975 compared to 3.82 percentage points from 1978 to 1981. Furthermore, the spread between interest return on mortgages held and interest rates paid was relatively stable during the earlier recession.

Summary and Short-Term Outlook

Residential construction in Kentucky reached an all-time peak in 1972 and was generally strong for the decade of the 1970s. However, the downswing that started in the late 1970s continued into the 1980s. This current decline in residential construction started earlier and has been sharper in Kentucky than in the nation.

The most recent downswing in residential construction was caused largely by high interest rates, inflation, and sluggish output in the economy. Residential construction is very sensitive to interest rate changes. The rapid rise in mortgage interest rates discouraged home purchases and, therefore, construction of new dwellings. The ability of households to purchase housing units was also affected by high rates of inflation during the early part of the downswing, and a poorly performing economy adversely affected personal incomes.

Some housing indicators are showing signs of recovery from the prolonged

downswing. Inventories of houses are low, which indicates some increase in sales and also a stronger need to increase housing production in the near term. Although some indexes suggest a different trend, most observers of housing trends believe that housing prices have been relatively flat or increasing very slowly over recent months. Probably the most important indicator of recovery is a decline in mortgage interest rates. The FHA interest rate ceiling has drifted down to 12 percent and other mortgage interest rates have been declining.

Other chapters in this *Annual Report* indicate that some improvement in the economy is expected over the next five or six quarters. The rate of inflation has been subsiding and mortgage interest rates have been declining recently. The outlook for 1983 is for a relatively stable rate of inflation and a slight decline in the mortgage interest rate. Real output in the state's economy is expected to increase gradually through 1983.

The affordability problem will continue at least through the next year. However, if the forecasts for the general economy hold true, residential construction in Kentucky will continue to expand through 1983. But the recovery most likely will be less vigorous than in previous recoveries.

FIGURE 1

INDEX OF PERMIT-AUTHORIZED RESIDENTIAL CONSTRUCTION, U.S. AND KENTUCKY

LEGEND: SYMBOL FOR U.S.: * SYMBOL FOR KENTUCKY: +
SYMBOL FOR INTERSECTION OF * AND +: O



SOURCE: CONSTRUCTION STATISTICS DIV., BUR. OF THE CENSUS, U.S. DEPT. COMMERCE

TABLE I
PERMIT-AUTHORIZED RESIDENTIAL CONSTRUCTION IN KENTUCKY
(Number of Permits Per Month; Seasonally Adjusted)

Year	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
1976	1,113	1,499	1,364	973	998	835	1,035	1,219	1,020	1,182	1,196	1,162
1977	705	2,212	1,462	1,496	1,296	1,741	1,479	1,487	1,407	1,385	1,197	1,574
1978	1,384	1,119	1,135	1,568	1,434	1,392	1,433	1,191	1,168	1,464	1,458	936
1979	965	888	1,295	1,178	1,210	1,129	1,069	1,030	1,166	931	1,038	1,182
1980	1,079	900	622	573	813	1,094	841	939	981	833	755	779
1981	1,001	832	777	747	767	594	642	624	383	334	534	752
1982	394	546	758	451	334	445	570	570	788	840	780	-

SOURCE: U.S. Department of Commerce, Bureau of the Census, Construction Statistics Division.

TABLE 2
SELECTED MORTGAGE RATES

<u>Date</u>	<u>FHA Interest Rate Ceilings</u>	<u>Effective Interest Rates on Conventional Loans</u>	
		<u>New Homes</u>	<u>All Loans*</u>
1982 (June)	15.50%	15.40%	17.16%
1981	15.50	14.70	16.72
1980	11.50	12.66	14.02
1979	10.00	10.78	11.32
1978	9.50	9.56	9.74

*Average of all lenders for 25-year mortgage loans with a loan-to-price ratio of 80 percent.

SOURCE: U.S. League of Savings Associations, and Federal Home Bank Board.

TABLE 3
**ANNUAL PERCENT CHANGE IN SELECTED COMPONENTS
OF THE CONSUMER PRICE INDEX**

<u>Date</u>	<u>All Items</u>	<u>Homeownership</u>	<u>Home Purchase</u>	<u>Finance, Taxes, and Insurance</u>
1982 (Jan.-Jun.)	4.9%	8.5%	12.0%	6.7%
1981	10.2	12.9	4.8	19.3
1980	13.5	20.1	14.2	29.0
1979	11.5	16.0	13.5	20.5
1978	7.6	10.9	9.5	13.6

SOURCE: U.S. Department of Labor, Bureau of Labor Statistics, *CPI Detailed Report*, various issues.

TABLE 4

RATES OF INTEREST PAID AND INTEREST RETURN ON
MORTGAGES: FSLIC-INSURED SAVINGS AND LOAN
ASSOCIATIONS IN THE FHLBB CINCINNATI DISTRICT*

Year	Effective Rates Paid (Interest and Dividends)	Interest Return on Mortgages Held	Difference (Percentage Points)
1981	10.37%	9.70%	-0.67
1980	8.57	9.28	0.71
1979	7.21	8.81	1.60
1978	6.55	8.43	1.88
1975	6.17	7.70	1.53
1974	5.94	7.47	1.53
1973	5.48	7.16	1.68
1972	5.35	6.99	1.64

*The Federal Home Loan Bank of Cincinnati covers Kentucky, Ohio, and Tennessee.

SOURCE: Federal Home Loan Bank Board.